WILDLIFE RESEARCH SECTION
FISH AND GAME BUILDING, M.S.U.
BOZEMAN, MONTANA 59715

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MONTANA

Fish and Game Commission

QUARTERLY REPORT

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OCTOBER - DECEMBER 1952

Wildlife Restoration Division

PITTMAN--ROBERTSON FEDERAL AID PROJECT

WILDLIFE RESEARCH SECTION
FISH AND GAME BUILDING, M.S.U.
MISSOULA, MONTANA 59715

Helena, Montana
January 15, 1953

Regional Director
U. S. Fish and Wildlife Service
Swan Island
Portland 18, Oregon

Dear Sir:

We are herewith submitting a Quarterly Progress Report in connection with the projects carried out through the use of Federal Aid in Wildlife Restoration funds.

The coverage is for the period October, November and December, 1952.

Submitted by:

Robert F. Cooney

Robert F. Cooney, Director
Wildlife Restoration Division

Approved by:

R. H. Lambeth

R. H. Lambeth
State Fish and Game Warden

WILDLIFE RESEARCH SECTION
FISH AND GAME BUILDING, M. S. U.
BOZEMAN, MONTANA 59715

QUARTERLY PROGRESS REPORT

For The

WILDLIFE RESTORATION DIVISION

STATE OF MONTANA

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Volume III Number 4

October, November and December, 1952

QUARTERLY PROGRESS REPORT

For The

WILDLIFE RESTORATION DIVISION

STATE OF MONTANA

Volume III Number 4

October, November and December, 1952

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STATE Montana
PROJECT NO. W-1-R-12 (Eastern)
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

INVESTIGATIONS PROJECTS

As Required By

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: Wildlife Surveys and Management (Eastern)

2. Leader: Don L. Brown, Biologist

Robert J. Fischer, Junior Biologist
Joe L. Egan, Junior Biologist
Glen F. Cole, Student Assistant

3. Report of Progress:

Work Plan I: Antelope Census, Herd Production, Migration and Mortality Studies

Job 1-A: Antelope Census
Late fall census report of part of Yellowstone Unit pending.
Summer census report of Carter Unit pending.
Summer census of Musselshell Unit pending.

Job 1-B: Antelope Herd Production Studies
Report pending compilation of summer census data.

Job 1-C: Study of Antelope Migration and Population Shifts
Report pending compilation of summer census data.

Job 1-D: Study of Antelope Losses by Hunting and Natural Causes
Report pending compilation of census data, checking stations data and field checks during winter seasons.

Work accomplished during the past summer and fall is being compiled and a report will be submitted during the late winter quarter.

For the first time since the more intensive antelope work began, there was a population shift from one management unit to another, resulting in many problems. The influx of these animals into areas of winter wheat caused many farmers to become concerned about damage. Without

sufficient evidence to determine whether or not damage was being committed, the only alternative was to reduce the numbers by hunting.

Progress Report, Powder River Unit, attached.

Work Plan II: Relationship of Antelope to Agriculture and Range Land Use

Job II-A: Relationship of Antelope to Winter Wheat Production
Proceeding.

The collection and analysis of antelope stomachs is proceeding. Late December observations and rancher checks on the Yellow Water Triangle wheat strips show no antelope use at this time.

Job II-B: Relationship of Antelope to Seed and Feed Alfalfa
Proceeding.

The collection and analysis of antelope stomachs is proceeding. Observations of antelope use on alfalfa were inactive during this period.

Job II-C: Relationship of Antelope to Range Land
The collection and analysis of antelope stomachs is proceeding. Observations attempting to secure antelope-minutes and general patterns of food habits have been started on the Yellow Water Triangle. Reference plant collections for use in analyzing antelope stomachs are also being made.

Job II-D: Antelope Damage to Agriculture Crops (Powder River Unit)
Proceeding.

There have been a few scattered complaints on antelope damage. Most of these complaints were investigated and were found to be somewhat exaggerated. The damage, as reported, was generally concerned with antelope competing with livestock on winter range. In no case, was any action taken, because of the nature of the "damage".

Work Plan III: Deer Food Habits Study on Badland Type Range

Job III-A: Important Food Plants Used by Deer in Badlands

Job III-B: Evaluation of Range Conditions and Degree of Use in Key Species
This project will be renewed after consideration of data gathered by survey crews of the Fish and Wildlife Service and Bureau of Land Management.

Job III-C: Population Studies of Deer (Missouri River Breaks)
Report pending.

Incomplete data indicates a doe-fawn ratio of 1:0.93 as compared to 1:1.24 a year ago. Sex ratio on pre-season check was B/D 1:2.1, post-season check incomplete to date.

Work Plan IV: Mule Deer Food Habits on Grassland Type Range

Job IV-A: Mule Deer Food Habits on Grassland Type Range
Stomach samples collected during special season; otherwise inactive during report period.

Job IV-B: Population Studies (Little Belt Mountains)
Progress report pending.

Work Plan V: Census and Survey of Deer Herds in Eastern Montana

Job V-A: Population Studies of Deer (Powder River Unit)
Progress Report attached.

Job V-A-1: Mule Deer Damage to Alfalfa (Powder River Unit)
Inactive during report period.

Job V-A-2: Collection of Analysis of Deer Stomachs in Ashland District
Report pending.
Stomach sample analysis.

Job V-B: Deer Population Studies of Carter Unit
Special season conducted to relieve deer concentrations causing economic conflict; report pending investigation of results.

Work Plan VI: Study of Introduced Mountain Sheep Herds in Badlands
Inactive during report period.

Work Plan VII: Census and Survey of Elk Herds in Eastern Montana

Job VII-A: Census and Survey of Established Elk Herds
Progress reports on Little Belt and Highwood Mountain elk herds pending compilation of field and checking station data.

Job VII-B: Investigation of Recently Introduced Elk Herds
Aerial surveys in Fort Peck area indicate a wide dispersion of herds over last year. Fewer elk were observed over the entire area and in smaller bands and as individuals. A more comprehensive survey will be conducted during the next quarter.

One tagged cow elk released on the west end of the Fort Peck Game Range was found by the Royal Canadian Mounted Police, in a weakened condition near Medicine Hat, Alberta. This cow had made her way approximately one hundred seventy-five miles (air line) through prairie country between February 20, 1952 and November 9, 1952.

Submitted by:

Name Don L. Brown

Title Biologist

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

JOB PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-1-R-12 Work Plan No. I Job No. I-D

Title of Job: Study of Antelope Losses by Hunting and Natural Causes

Date: September 19 to October 5, 1952, inclusive.

PERSONNEL: Joe Egan, Junior Biologist
Frank Dunkle, Deputy Game Warden
Warren Linville, Deputy Game Warden

OBJECTIVES:

To ascertain numbers and sex of antelope killed during the September 19 to October 5, 1952, antelope season on Area 39.

To ascertain success and origin of hunters.

TECHNIQUES USED:

The hunters were contacted in the field, since no checking stations were used. The area was divided into three sections.

The Western section of the area being bordered by the Tongue River, the Powder River - Custer County line, the Pumpkin Creek - Sayle Road and the Wyoming line; the Central section was bounded by the Pumpkin Creek - Sayle road, the Powder River - Custer County line, the Powder River, the Little Powder River, and the Wyoming line; and the Eastern section was bounded by the Little Powder River, Highway 212, and the Wyoming line.

Three men worked the three sections during the first three days of the season, two men worked the three sections from September 26 to the 28th, and one man worked the Central and Eastern sections on October 4th and 5th.

Daylight to dark were the hours of investigation for the days shown.

FINDINGS:

Number and sex of antelope actually checked for Area 39, September 19 - October 5, 1952 (indicated by days). See Table I.

Origin of successful hunters checked. See Table II.

In addition the following antelope from Area 40 were checked. See Table III.

Table I. Number and Sex of Antelope Checked in Area 39

Date	Ad. Males	Ad. Females	Fawn Males	Fawn Females	Total
September 19	20	3	-	-	23
September 20	15	1	-	-	18
September 21	5	-	-	-	5
September 26	-	-	-	-	-
September 27	2	-	-	-	2
September 28	1	-	-	-	1
October 3	1	-	-	-	1
October 4	-	-	-	-	-
October 5	-	-	-	-	-
Total	44	4	-	2	50

Table II. Origin of Successful Hunters Checked.

Town	Number	Percent
Billings	10	20
Forsyth	2	4
Glendive	3	6
Hardin	18	36
Miles City	2	4
Local (Within fifty miles of area)	4	8
Other (Bozeman, Dagmar, Helena, Philipsburg & Shepherd)	11	22
Total	50	

Table III. Antelope Checked from Area 40.

Date	Ad. Males	Ad. Females	Fawn Males	Fawn Females	Total
September 20	7	1	1	-	9

CONCLUSIONS AND RECOMMENDATIONS:

Field contacts with the hunters, together with observations, tend to indicate that most hunters were successful in bagging their game.

The data collected was considerably below the amount anticipated. This can be attributed to the large area, and the many access roads.

Because of these conditions, the numbers of hunters contacted in the field was limited. For the same reasons, the great numbers of checking stations required would be impractical.

The antelope of this area recently show a tendency to adapt themselves to habitats not previously considered antelope range (i.e. sparsely timbered areas and open areas surrounded by timber). And accompanied by the assumption there exists a migration to and from Wyoming, insufficient data has been collected to manage this herd.

It is recommended that management of this herd be based on data accumulated by annual or biennial counts.

Submitted by Joe Egan Approved by Don L. Brown

Date December 29, 1952

JOB PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Provect No. W-1-R-12 Work Plan No. V Job No. V-A

Title of Job: Deer Population Study (Powder River Unit)

Date: October 15 to November 15, 1952, both dates inclusive

INTRODUCTION:

For the first time in at least twenty years, a 30-day either sex season was held in the Ashland district. The area is bounded by Highway 8 on the north, the Powder River on the east, the Montana-Wyoming line on the south, and the Tongue River on the west. These boundaries encompass about 1,584 square miles.

West of this area, there was a 3-day either sex season (October 15-17 inclusive) and north and east of the area there was a 12-day either sex season (October 15 - October 26 inclusive).

In general, this either sex season was accepted by the public.

OBJECTIVES:

To ascertain numbers and sex of deer killed during the season.

To ascertain origin and success of the hunters.

TECHNIQUES USED:

Two checking stations were operated during the season, one at Ashland, Montana and one at the junction of the Pumpkin Creek road and Highway 8. The stations were operated during the first five days, all weekends, and the last three days of the season. Hours of operation were from 7-8 A.M. until 8-9 P.M. and at times until 10 or 11 P.M.

Since there was only one man for each station, the only information obtained was sex, place of kill, origin of hunters, caliber gun, species, condition of deer, and unsuccessful hunters.

FINDINGS:

The total number of deer checked through the two stations was 862.

The number of males, females and fawns are as follows:

Males	349
Females	398
Fawn Males	60
Fawn Females	55
Total	862

The kill by drainages is given below:

Otter Creek Drainage	
Adult Males	220
Adult Females	243
Fawn Males	35
Fawn Females	26
Total	524

Pumpkin Creek Drainage	
Adult Males	43
Adult Females	65
Fawn Males	7
Fawn Females	9
Total	124

Powder River Drainage	
Adult Males	68
Adult Females	76
Fawn Males	17
Fawn Females	17
Total	178

Tongue River Drainage	
Adult Males	17
Adult Females	13
Fawn Males	1
Fawn Females	3
Total	34

Other:

Rosebud Creek (Rosebud County)	1 Adult Male
Sarpy Creek (Treasure County)	1 Adult Male

Distance travelled (Based on 827 successful hunters):

Local (Within fifty mile radius of center of the area)
42 hunters - 52% from Ashland

Fifty to one hundred miles
355 hunters - 55% from Miles City

One hundred to one hundred-fifty miles
332 hunters - 85% from Billings

One hundred-fifty miles and over
98 hunters - 31% from Sidney

The following table shows the caliber of guns used (based on 695 successful hunters):

Caliber	Number	Percent
.30-.06	222	31
.30-.30	152	21
.270	96	14
.300 Svg. & Mag.	78	11
8 m/m	28	4
.250	18	3
Others	101	15

The success of the hunters had a range from 92.5% (Oct. 17th, Friday, Ashland Station) to 12.3% (Nov. 14th, Friday, Ashland Station).

The average success for the entire area was 58.74%. The average success for the entire area for the first 5 days of the season was 73.59% and for the last three days it was 42.69.

During the first five days, there were 422 deer removed from the area, or 48.9% of the entire kill.

CONCLUSIONS AND RECOMMENDATIONS:

Buck-doe and doe-fawn ratios were not computed because the hunters had a tendency to hunt bucks. Consequently the data collected was biased.

Although the kill is the highest it has ever been for a given season (based on known data), only future investigations will determine its effect.

It is assumed the two stations checked the majority of the hunters.

The extremely dry weather condition was advantageous in allowing hunters to make good coverage, but detrimental in making hunting noisy.

There were no fires or hunting accidents reported.

An either sex season is recommended for the next year; the length or number to be killed will be determined by investigations.

It is also recommended that placement of checking stations be investigated for maximum efficiency.

Submitted by Joe Egan Approved Don L. Brown

Date December 29, 1952

ANALYSIS OF SPECIAL SEASONS CARD RETURNS

The following brief special report is included. The time involved in the preparation of this material was considered incidental to the regular program. However, we feel that the information gained was of sufficient importance to merit inclusion.

OBJECTIVES:

To determine the number of animals taken from an area and for future reference in issuing special permits, a canvass of the hunters was necessary.

It was assumed that a relative success ratio for species and area would evolve; i.e. Highwood Mountains elk and Little Belt Mountains deer, etc. It is hoped that eventually it will be possible to anticipate the hunter success for each type of cover.

PROCEDURE:

In most cases every hunter was sent a card, but in some cases a random sample method, every fifth name, was employed. Double post cards were used, one card carrying a paragraph of explanation and the permit holders address, the other a return card with the desired information. The return card was so arranged that the hunter could fill it in with just a few check marks.

In some cases the non-reporters were sent a second card in an attempt to determine whether or not a successful hunter was more likely to send in a card than an unsuccessful one; no difference was noted.

CONCLUSIONS:

The practice of questioning hunters by post card has been carried on for most of the special permit seasons since 1948. It becomes increasingly evident that it is possible to anticipate the kill in any area for deer.

Apparently the ratio of does to fawns killed is not in direct proportion to their abundance. Also there is some evidence that hunters may take a buck if there is a choice.

In the case of elk, each area will establish its own hunter success ratio which will probably remain constant if all other factors are equal. As an example, a somewhat constant percentage of success is indicated for the Highwood Mountains; i.e. approximately 50% of the bull permits are filled and 60% of the hunters with either sex permits are successful.

It is concluded that over the years a percentage of kill will be found that will be dependable in issuing deer permits on areas of equal cover and terrain.

CARD RETURN ANALYSIS

Area	Number Permits Issued	Species	No. Reporting	No. Successful	No. Unsuccessful	% Success	Computed Kill	Sex Ratio of Known Kill	
								Male	Female
Poplar Unit (Culbertson)	150 E.S.	White-tail	105	99	9	92	138	41	58
Fort Peck Game Range (Phillips Co.)	150 E.S.	Mule Deer	99	90**	9	91	137	39	51
Fort Peck Game Range (Fergus Co.)	150 E.S.	Mule Deer	120	109**	11	91	137	49	60
Musselshell Unit (Settle Ranch)	30 E.S.	Mule Deer	16	16	0	100	30	5	11
Powder River Unit (Bay Horse Creek)	150 E.S.	Mule Deer	19*	18	1	95	142	8	10
Little Belts Unit (Arnot Ranch)	100 E.S.	Mule Deer	90	83	7	90	90	21	62
Little Belts Unit (Dunkle Ranch)	30 E. S.	Elk	24	15	9	62.5	19	1	14
Yellowstone Unit (Pine Ridge)	35 E.S.	Elk	19	0	19	0	0		
Chouteau Unit (Highwood)	40 Bulls only	Elk	31	15	16	47.5	19	15	
	35 E.S.	Elk	26	15	11	57.7	20	6	9
Fergus Unit (Judith Mountains)	15 Bulls	Elk	15	5	10	33.3	5	5	

*Random sample
**Few White-tail deer included

For elk, cover and terrain will need to be considered, but weather will be the more important factor. Thus always there will be an unknown which will have to be considered.

RECOMMENDATIONS:

Continuation of project until sufficient information has been obtained to make the results conclusive.

Prepared by Don L. Brown

Approved by Robert F. Cooney

Date October 15, 1952

State Montana
Project No. W-1-R-13
Date January 15, 1953
Vol. III No. IV

QUARTERLY PROGRESS REPORT FOR

INVESTIGATIONS PROJECTS

As Required By

FEDERAL AID IN FISH AND WILDLIFE RESTORATION ACTS

1. Title of Project: Wildlife Surveys and Management - Western Montana

2. Leader: Phillip B. Marshall, Junior Biologist

Herman Ogren, Junior Biologist

3. Report of Progress:

Work Plan I: Big Game Population Studies

Job I-A: Big Game Survey in South Fork of Flathead, Swan, Blackfoot, and Adjacent Areas
This work will begin with the arrival of good flying weather. Aviation gasoline has been arranged for at Spotted Bear Ranger Station, and 114 gallons were purchased and taken to the Blackfoot-Clearwater Game Range for use during the work.

Ground work awaits more snow to force all animals to lower elevations and to concentrate them.

Job I-B: Big Game Survey in the Bitterroot, Rock Creek, Fish Creek, Thompson Falls, Cherry Creek, and Adjacent Areas
This work also awaits good flying weather for censusing and more snow for more efficient ground work.

Work Plan II: Big Game Reproduction, Age Classification, and Hunter Utilization

Job II-A: Age Classification and Herd Rate of Increase

Job II-B: Hunter Utilization
An either sex deer hunt in Flathead, Granite, Lake, Mineral, Missoula, Ravalli, and Sanders counties was held on November 8-15, and in Deer Lodge and Powell counties on November 13-15. Near the end of the hunting season it became apparent that the harvest of big game was going to be quite low, so the season was

extended to November 20 in all the above counties except Deer Lodge and Powell.

Eleven checking stations were set up of which two were operated during the entire big game hunting season. These stations and their dates of operation were as follows:

Waylett's	Lincoln County	November 8-21
Island Lake	" "	" 8-21
MacGregor Lake	" "	" 8-21
Thompson River	Sanders County	" 8-21
Little Thompson	" "	" 8-21
Coram	Flathead County	October 15 - November 21
Bonner	Missoula County	October 15 - November 21
Swan River	Lake County	November 8-21
Lincoln	Lewis & Clark Co.	" 13-15
Drummond	Granite County	" 13-15
Avon	Powell County	" 13-15

Prior to the opening of the either sex hunt, mimeographed sheets explaining the purpose of obtaining female deer reproductive tracts and how to remove them were distributed. These sheets were given to sporting goods dealers in centers of population from which hunters would go into areas covered by the checking stations. Sheets were also given to hunters at the checking stations. Newspaper publicity asked hunters to save the reproductive tracts and turn them in to the checking stations.

A number of reproductive tracts were obtained but have not yet been analysed.

Each checking station was supplied with a jaw board for aging deer as they were brought into the station. However, due to the lack of trained personnel, deer at some stations were not aged in sufficient numbers to give reliable indication of the age classification of the deer herd in the areas covered by those stations.

The overall kill in western Montana was comparatively light even after the five extra days of hunting. This was mostly due to the extremely dry field conditions that prevailed throughout the greater part of the season. The lower kill was especially evident on mule deer and elk, which remained on high, inaccessible summer range throughout the entire season. The Bonner checking station showed 55.1% as many mule deer and 46.4% as many elk as were checked from the same areas in 1951.

A total of 943 white-tailed deer, 234 mule deer, and 588 elk was checked through the stations. Of the

white-tailed deer, 479 were males (78 fawns) and 464 were females (108 fawns). Of the mule deer, 169 were males, (9 fawns) and 65 were females (10 fawns). Of the elk, 288 were males (46 calves), and 297 were females (45 calves). Three elk were unclassified.

A breakdown of the kill by checking stations follows:

Waylett's Nov. 8-21

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	31	25	5	9	70
Mule deer	15	2	1	1	19
Elk	3	0	0	0	3

Doe:Fawn ratio White-tailed deer 1:.73
Mule deer 1:1

Sex ratio White-tailed deer 1:.80
Mule deer 1:.13

Island Lake Nov. 8-21

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	53	61	20	19	153
Mule deer	9	7	2	0	18
Elk	3 unclassified				

Doe:Fawn ratio White-tailed deer 1:1.1
Mule deer 1:.5

Sex ratio White-tailed deer 1:1.1
Mule deer 1:.7

MacGregor Lake Nov. 8-21

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	31	41	11	14	97
Mule deer	6	4	0	0	10
Elk	0	0	0	0	0

Doe:Fawn ratio White-tailed deer 1:1.2

Sex ratio White-tailed deer 1:1.3
Mule deer 1:.66

Thompson River Nov. 8-21

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	23	18	3	1	45
Mule deer	16	5	0	0	21
Elk	2	4	0	0	6

Doe:Fawn ratio White-tailed deer 1:.22

Sex ratio White-tailed deer 1:.78
Mule deer 1:.31
Elk 1:2

Little Thompson River Nov. 8-21

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	31	24	8	10	73
Mule deer	5	0	0	0	5
Elk	1	2	0	0	3

Doe:Fawn ratio White-tailed deer 1:.75

Sex ratio White-tailed deer 1:.77
Elk 1:2

Coram Oct. 15 - Nov. 21

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	9	3	3	6	21
Mule deer	9	1	0	0	10
Elk	176	193	29	35	433

Doe:Fawn ratio White-tailed deer 1:3
Elk 1:.47

Sex ratio Elk 1:1.1

Bonner Oct. 15 - Nov. 21

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	148	128	7	26	309
Mule deer	84	16	3	6	109
Elk	50	39	11	8	108

Doe:Fawn ratio White-tailed deer 1:.25
Mule deer 1:.56
Elk 1:.48

Sex ratio White-tailed deer 1:1.25
Mule deer 1:.34
Elk 1:.78

The doe:fawn ratios as given are very probably somewhat higher than those actually existing in the wild. The samples from some of the stations are too small to be reliable. Except for the data from the stations in Lincoln County, the numbers of females used in calculating the ratios include yearlings. Ovarian analyses in the past have given no evidence of yearlings breeding as fawns in Montana. If it is assumed from this that the yearlings have not bred as fawns, then the data from all the stations but the above named three would give a considerably lower ratio than is actually the case.

Another factor that in part accounts for the low ratios is that hunters will not kill fawns except as a last resort. Many hunters when interviewed, stated that they would not knowingly kill a fawn. Several hunters thought that fawns could not legally be taken.

The doe:fawn ratios obtained from the kill figures will be compared to those obtained from ovarian analysis at a later date.

The sex ratios as obtained from the kill figures are probably quite close to those actually existing in the wild. From hunter interviews, there is apparently little preference among the majority of hunters for a buck or a doe.

Only five of the stations aged enough deer to provide reliable indications of the age classification of the deer herds. These were Waylett's, Island Lake, MacGregor Lake, Bonner and Thompson River.

Swan River Nov. 8 - 21

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	47	36	20	17	120
Mule deer	0	0	0	0	0
Elk	0	4	4	1	9

Doe:Fawn ratio White-tailed deer 1:1
Elk 1:1.25

Sex ratio White-tailed deer 1:.76

Lincoln Nov. 13 - 15

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	9	3	0	2	14
Mule deer	5	1	0	1	7
Elk	0	0	0	0	0

Doe:Fawn ratio White-tailed deer 1:.66
Mule deer 1:1

Sex ratio White-tailed deer 1:.32
Mule deer 1:.20

Drummond Nov. 13 - 15

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	13	8	1	4	26
Mule deer	6	14	3	2	25
Elk	4	10	2	0	16

Doe:Fawn ratio White-tailed deer 1:.63
Mule deer 1:.36
Elk 1:.20

Sex ratio White-tailed deer 1:.61
Mule deer 1:2.3
Elk 1:2.5

Avon Nov. 13 - 15

	Males	Females	Male Fawns	Female Fawns	Total
White-tailed deer	6	9	0	0	15
Mule deer	5	5	0	0	10
Elk	6	0	0	1	7

Sex ratio White-tailed deer 1:1.5
Mule deer 1:1

Waylett's

White-tailed Deer

Age	Male	Female	Percent of Total
6 months	5	9	20.0
1½	8	6	20.0
2½	9	4	18.6
3½	5	4	12.8
4½	6	2	11.4
5½	2	2	5.7
6½	1	2	4.3
7½	0	1	1.4
8½-9½	0	4	5.7
10½ plus	0	0	0

Island Lake

White-tailed Deer

Age	Male	Female	Percent of Total
6 months	20	19	27.6
1½	18	19	26.2
2½	12	12	17.0
3½	9	6	10.6
4½	2	2	2.8
5½	3	7	7.1
6½	1	4	3.5
7½	1	3	2.8
8½-9½	2	0	1.4
10½ plus	0	1	.7

MacGregor Lake

White-tailed Deer

Age	Male	Female	Percent of Total
6 months	11	14	27.4
1½	10	14	26.3
2½	11	8	20.8
3½	3	1	4.4
4½	0	0	0
5½	3	0	3.3
6½	4	4	8.8
7½	0	6	6.6
8½-9½	0	2	2.1
10½ plus	0	0	0

Bonner

White-tailed Deer

Age	Male	Female	Percent of Total
6 months	7	26	30.5
1½	9	8	15.7
2½	14	13	25.0
3½	12	8	18.5
4½	2	2	3.7
5½	1	1	1.8
6½	1	0	0.9
7½	2	0	1.8
8½-9½	1	1	1.8
10½ plus	0	0	0

Thompson River

White-tailed Deer

Age	Male	Female	Percent of Total
6 months	9	10	23.4
1½	10	5	18.5
2½	8	12	24.7
3½	6	1	8.6
4½	8	3	13.5
5½	2	0	2.5
6½	2	1	3.7
7½	1	2	3.7
8½-9½	0	1	1.2
10½ plus	0	0	0

It is apparent from the data that the deer herd in the area covered by the Bonner station (Blackfoot-Clearwater, upper Swan River drainages) is more heavily hunted than are the herds in Lincoln county covered by Waylett's, Island Lake, and MacGregor Lake stations, and the herds in the Thompson River area. In the herd sampled at Bonner, only 10.1% of the deer taken were 4½ years old or more, while in the Lincoln County herd, 23.2% are 4½ years old or more and in Thompson River herd 24.7% are 4½ years old or more.

Although too few deer were aged at the Lincoln, Avon, and Drummond stations, indications are that the deer herd sampled by these stations in general followed rather closely the age classification of the herd sampled at Bonner.

The deer in the Swan Valley are apparently less heavily hunted than any of the other areas sampled, although again too few deer were aged. The known kill in the Swan was very low in view of the high population estimated for the area.

The Coram station, covering the South Fork of the Flathead River drainage, ordinarily does not check a

large number of deer as this area is hunted primarily for elk.

Work Plan III: Study of the Migratory Habits of Big Game in Key Areas

Job III-A: Tagging and Release of Mature Elk on the Blackfoot Game Range

A portable elk trap has been set up and operations are proceeding.

Job III-B: Tagging and Release of Mature Elk in the Bitterroot
To date, no concentrations of elk have occurred to make trapping feasible. One flight to attempt to locate the elk by air was forced back by bad weather.

Job III-C: Tagging and Release of Mature Elk in the Upper South Fork
A preliminary survey was made of the trap at Danaher Flats to determine the extent of repairs to be made. Hay and protein cake have been obtained, and necessary equipment has been assembled so that operations may begin with the arrival of good flying weather.

Work Plan IV: Range Inspection and Browse Measurements

Job IV-A: Forage Utilization on Key Areas
The method formerly used for measuring utilization has been discarded as explained in the quarterly report for April - June , 1952.

A method proposed by Aldous (Jour. Mammalogy, 1944) will be tried in the Swan drainage which is primarily white-tailed deer winter range, and in some other winter range which is used by both elk and deer to determine whether or not the method can be used on winter range used by species other than white-tailed deer.

Job IV-B: This work is to be conducted in conjunction with the ground census work.

Work Plan V: Rocky Mountain Sheep Investigation
Report attached.

Job V-A & B: Bighorn Sheep Count, Flathead-Sun River Unit
Report attached.

Job V-A: Mountain Sheep Census and Distribution
A ground census of the sheep in Rock Creek was made. A total of 28 sheep was counted and classified as follows:

Lambs	9	Ewes	10
Yearlings	5	Rams	4

Work Plan VI: Rocky Mountain Goat Investigation

No work done since previously reported.

Work Plan VII: Aerial Salt Distribution

Job VII-A: To be done in May and June, 1953.

Work Plan VIII: Characteristics of Natural Licks Used by Wildlife in Montana

Job VIII-A: Personnel: Dwight S. Stockstad, Student Assistant
Chemical analyses are continuing.

Submitted by:

Name Phillip B. Marshall

Title Junior Biologist

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-1-R-13 (Western) Work Plan No. V

Title of Work Plan: Rocky Mountain Sheep Investigations

Intensive observation of the mountain sheep on Wildhorse Island continued throughout the reporting period. It was found necessary to move Mr. Ogren's headquarters from the Island to the mainland. He has been able, however, to continue a constant contact with the Island by motor boat. With the cooler weather prevailing, more constant observations were obtained as the mountain sheep spent very little time in the timbered areas. The rams joined the ewe and lamb groups during November, thus allowing for the most complete census work yet carried out.

Detailed notes were continued regarding group composition, feeding habits, mating activities, plus observations regarding competition for range, particularly by the rather large number of saddle stock ranged on the Island. It is anticipated that should severe winter conditions develop, this competition between the horses and mountain sheep may become quite serious.

During the latter portion of the reporting period, a dead sheep was found and immediately taken to the University for an autopsy. Dr. Jeffers of the Bacteriology Department performed the autopsy. Dr. Phil Wright stated: "The animal died apparently of a very acute type of pneumonia with which Dr. Jeffers has already killed mice in less than twenty-four hours. The lungs were so badly infected that they looked like liver and there were large quantities of blood in the thoracic cavity. The disease apparently hit the animal very suddenly as she was in fat condition and weighed 148 pounds."

Prepared by Robert F. Cooney

Project No. W-1-R-13 Work Plan V Job V-A & B

Bighorn Sheep Count, Flathead - Sun River Unit

Job V-A Mountain Sheep Census and Distribution
Job V-B Mountain Sheep Herd Classification and Sex Ratio Determination

Dates: December 8-11, 1952

Personnel: Faye M. Couey, supervising
Robert Neal, Chief
Bruce Neal
Dave Stonehouse
Phillip Marshall
Frank Gummer
James McLucas
Philip South
Joe Townsend
Herman Ogren
Doug Morrison, Lewis & Clark National Forest
Jack Hinman, Lewis & Clark National Forest
Paul Mihalovich, Deputy Game Warden

Purpose:

An annual census of bighorns has been conducted in this area each year since 1941. It is desired to continue getting this information along with supplemental data on deer, elk and range conditions in order to manage all species properly.

Procedure:

The crew met at the Augusta Ranger Station on December 8, made plans for complete coverage of bighorn winter range, discussed techniques to be used, and then dispursed to the Willow Creek and Hannan Gulch Ranger Stations. Two men went to West Fork Licks, through to Willow Creek; two to the Klick Ranch and the rest covered the lower area from Hannan Gulch Ranger Station. Extreme care was exercised to prevent duplication on the bighorn count. All game seen was classified as to age and sex.

Findings: Mountain Sheep

Location, numbers and classification of all game seen are shown on the accompanying table.

The ewe-lamb ratio for the past year is 1:.66, the highest recorded for this area. The average for the previous nine years is 1:.41.

The percent of lambs going into the winter of 1952-53 is 26%. The average for the previous nine years is 19%.

Table 1. Game Count - December 8-11, 1952

Area	Bighorn					Mule Deer					White-tailed Deer				Elk				
	Ram	Yg. Ram	Ewe	Lamb	Unc.	Buck	Spike	Doe	Fawn	Unc.	Buck	Doe	Fawn	Unc.	Bull	Spike	Cow	Calf	Unc.
Norwegian						2		16	8										
Hannan Sheds	2	4	10	6															
Wagner-Castle Reef	5	3	12	8	2	8		55	31	35		2	3						
Big George (E. Side)	8	9	17	10	1							2	1	2					
Big George (W. Side)	7	2	14	5															232
Mortimer	1		5	3		2		6	6	2		1	1	8					
Blacktail														5					
Hannan Gulch	4	4	4	4		9		22	20		2	3		2					
Home Gulch								15	5										
French Gulch						4		11	3										
Stecker Area						2		14	18										
Scattering Springs	2	1	1	1								2	2						
Reclamation Flat	5	4	9	10															
Sheep Reef																			
Arsenic	9	4	5	3										5					
Sheep Trap	8	3	16	10															
Elephant Head	1																		
West Fork Sun River	5		7	7															
Pretty Prairie																			187
Lower Sun River	1		4	2															
Ford Plateau	5	1	10	6		5		16	12	58									
Total	63	35	114	75	3	32		155	103	95	2	10	7	22					419
Grand Total					290					387				41					419

Two adult and one kid goat seen near Hannan Ranger Station

Rams - 34% Mature Rams - 21%
Ewes (plus yearlings) - 39%
Lambs - 26% Ewe:Lamb ratio - 1:.66

Rams constituted 34% of the total number of sheep seen. There were 21.7% mature rams in the herd.

The sheep were well down on their winter range and the breeding activity was just tapering off, making conditions good for census.

Findings: Mule Deer

A total of 387 mule deer were seen. Conditions were not good for census as deer were not concentrated on the lower ranges. Bucks were segregated from the herds and it is felt many were missed. Of the 292 classified, there were 10% bucks and 30% fawns. Both the latter figures are below average for the past several years.

Findings: White-tailed Deer

Not a significant number of white-tailed deer was seen to classify. The largest number of this species is in Beaver Creek and this drainage was not censused.

Findings: Elk

A total of 419 elk was seen on the count. Most of the herd was still back in the higher country. About 200 had moved out on the game range indicating that they were starting to drift outward.

Discussion:

The results of the bighorn census were very encouraging both from the total number and from the lamb increase figures. This is the second record year for lamb crop and total number of sheep counted. The forage is in excellent shape and indications are that a mild winter is approaching.

It has become more evident that the release of competition from elk on the bignorn winter range has resulted in better conditions for the mountain sheep. The elk now migrate outside the mountains to the Game Range, leaving the forage on the intermediate range in good condition.

Predators are abundant throughout the bighorn winter range. More mountain lions have been caught or seen than at any time in the last forty years. Bobcats and coyotes are numerous. In order to remove as much drain from the bighorn as possible, an intensive predator control program in this immediate area has been inaugurated this winter. Attempts will also be made to gain as much information as is possible regarding actual preying on big game by all predators, including eagles.

Submitted by: Faye M. Couey
Big Game and Lands
Biologist

Approved by: Robert F. Cooney, Director
Wildlife Restoration Division

Date: January 15, 1953

STATE Montana
PROJECT NO. W-35-R-4
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

INVESTIGATIONS PROJECTS

As Required by

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: Southwestern Montana Unit

2. Leader: J. E. Gaab, Unit Biologist

Philip South, Junior Biologist
Norman Wortman, Fieldman

3. Report of Progress:

Work Plan 1: Big Game Population and Range Trends

Job 1-A: Big Game Survey of the Beartooth Plateau (including Boulder River Drainage)
Progressing.

1. An aerial inspection of the mule deer concentrations along the east slope of the Absaroka Mountains was made in conjunction with contacts of complaining ranchers. No complaints were registered and no heavy deer concentrations were observed.
2. An aerial inspection of the Rock Creek elk was made following the open season. Several small groups of elk were observed from Redlodge Creek to Main Rock Creek. One hundred and twenty-one (121) elk were concentrated in the lower West Fork of Rock Creek. It was decided to have a special season to break up this concentration and afford a harvest. Seventy-five permits were issued and the season went off very satisfactorily.
3. A ground inspection was made in the Boulder River area following the regular season. It was determined that due to the open fall season that probably no additional harvest would be necessary.

Job 1-B: Big Game Survey in Absaroka Wilderness Area
Progressing.

1. Investigations during the open elk, moose and deer season revealed that management practices for that area are adequate.
   a. Moose hunters harvested bulls of trophy proportions.
   b. Although deer hunting is minor, deer provided satisfactory hunting to those who wished to partake in it.
   c. Elk hunting was comparable with last year's harvest by being increased over past years due to manipulation of elk through a salting program.

Job 1-C: Big Game Survey in Upper Yellowstone
Progressing.

1. The Mill and Big Creek mule deer ranges were investigated following a three-day either sex harvest. No additional harvest was felt necessary.

Job 1-D: Big Game Survey in Gallatin
Progressing.

1. West Gallatin comparative aerial and ground census.
   a. Job Completion Report attached.
2. Norman Wortman has been employed on a permanent basis to carry on this work and to manage the Porcupine Game Range.
3. A three-day investigation was made in the Horseshoe Hills.
   a. The elk transplanted in that area are spread out and appear to be doing quite well.
   b. The entire area is in a big game closure of long standing. It was attempted last year to open this area to deer hunting but the ranchers were very much opposed. At present the mule deer population is very near winter range capacity and in the very near future a range problem will probably appear.
   c. A potential Rocky Mountain bighorn sheep transplanting site on the east side of Sixteen Mile Creek was investigated. Private land would be donated for a pasture. This pasture would necessarily have to be fenced predator-free until a nucleus herd was established. The pasture would be adjacent to the Helena National Forest on the south end of the Big Belt Mountains.

Additional administrative procedures would be necessary before further consideration.

Job 1-E: Big Game Survey in Madison
Progressing.
1. Post-season investigations were made in the mule deer winter ranges. Two special seasons were recommended and carried out. Depletion of available winter forage and damage to private property has been minimized.
2. The continuous either sex elk season until January 31st has been observed.

Job 1-F: Big Game Survey in Ruby
Progressing.
(See Job 2-B)

Job 1-G: Big Game Survey in Blacktail
Progressing.
(See Job 2-B)

Job 1-H: Big Game Survey in Beaverhead River Area
Progressing.
(See Job 2-B)

Job 1-I: Big Game Survey in Big Hole - Wise River
Progressing.
Checking stations were manned at Mill Creek and at Divide.

Mill Creek Checking Station

Species	Adult Male	Adult Female	Young Male	Young Female	Spikes	Total
Elk	18	15	1	2	8	44
Mule Deer	55	55	8	16	20	154
Moose	5	2				7

Divide Checking Station

Species	Male	Female and Fawn	Total
Elk			76
Mule Deer	76	57	133
Moose			9
Bear			1

Job 1-J: Big Game Survey Crazy Mountains
Very little has been done this quarter except contacting ranchers and getting their opinion on the past three-day

hunter's choice mule deer season over the entire area.

Job 1-K: Big Game Survey Big Belt - Boulder Area
A complete report regarding this area will be submitted at a later date.

Work Plan 2: Big Game Reproduction, Age Classification and Hunter Utilization

1. All big game seasons were observed and all information possible was collected from local deputy game wardens, ranchers, and sportsmen as to the success of present management. Stabilization of management practices is evident for the future.
2. See Job Completion Reports attached.

Work Plan 3: Study of the Migratory Habits of Big Game in Key Areas

Progressing.
1. Map indicating initial migration of the West Gallatin elk as observed by plane December 16th attached.

Work Plan 4: Range Inspection and Browse Measurement as Well as Transect and Exclosure Observations
Progressing.
1. Phil South, Junior Biologist stationed at Dillon, has been locating sites for intensive work on mule deer food habits and competition with domestic livestock.

Work Plan 5: Experimental Range Improvement
Inactive during report period.

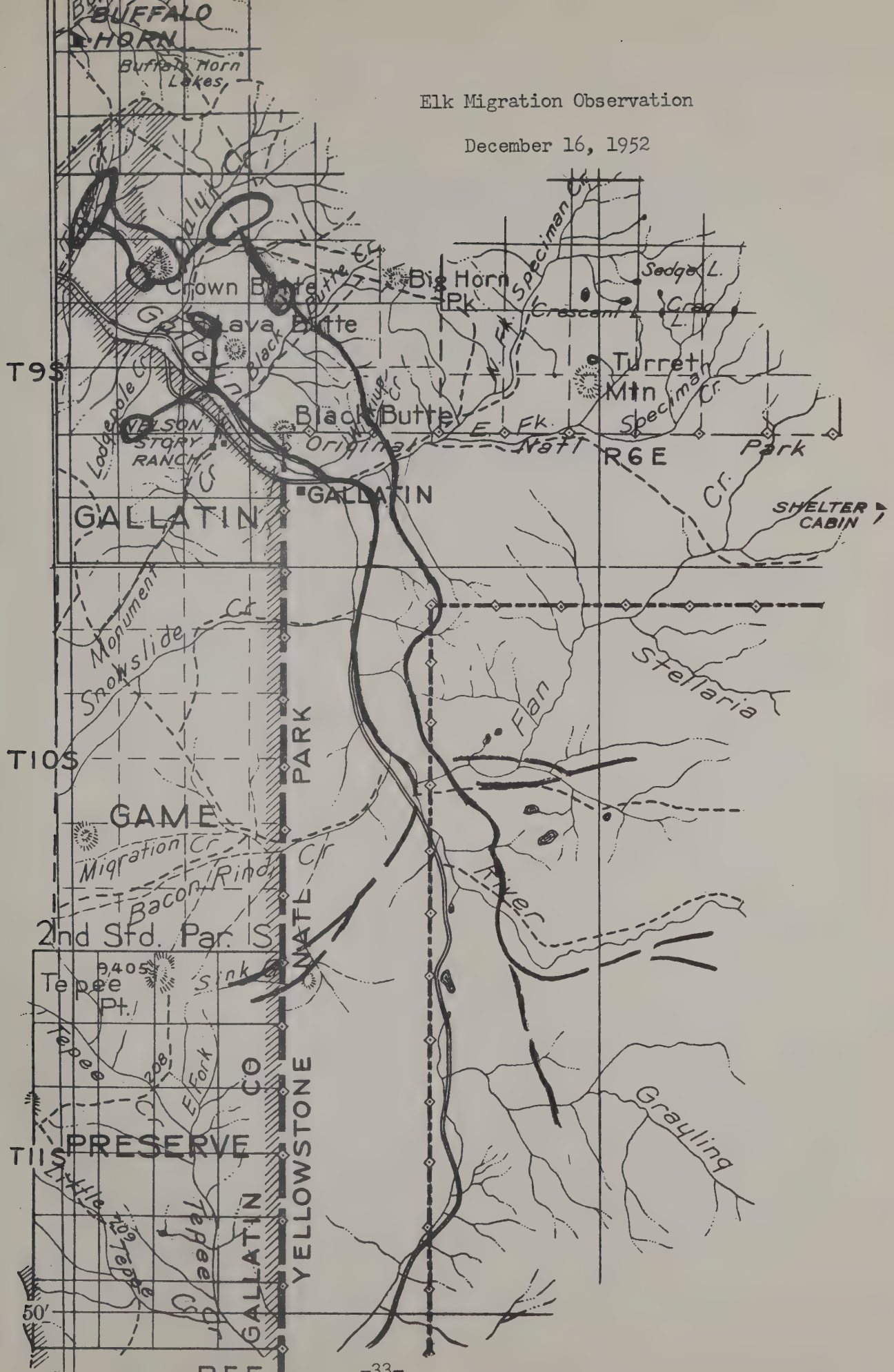
Work Plan 6: Moose Investigation
Progressing.
1. All moose hunting areas have been observed and hunter success recorded.

2. A brief investigation of the Spanish Creek moose habitat indicates many trophy animals which haven't been disturbed by hunters.

Work Plan 7: Rocky Mountain Goat Investigations
1. A four-day inspection of wintering conditions for goats in Sweetgrass Canyon (Crazy Mountains) was made by Jack Lentfer and Jack Saunders, Montana State College students working on Rocky Mountain Goat theses. A male goat was collected weighing 208 pounds on foot.
2. Six goats were observed in the South Fork of Spanish Creek which were transplanted two years

Elk Migration Observation

December 16, 1952



hence.

3. A reconnaissance flight was made of the Pioneer Mountains to become familiar with the difficulties of censusing the mountain goat in that area. Twenty-nine goats were observed.

Work Plan 8: Rocky Mountain Sheep Investigations

Progressing.

1. Twenty-three bighorn sheep were observed by air in the vicinity of Monument Mountain, West Gallatin River.
2. Twenty-four bighorn sheep were observed at the mouth of Asbestos Creek, West Gallatin River.
3. Twelve bighorn sheep were reported in the vicinity of Potosi Mountain, Tobacco Root Mountains.

Submitted by:	Approved by:
Name J. E. Gaab	Montana State Department of Fish and Game
Title Biologist	By Robert F. Cooney, Director
Name Philip South	Wildlife Restoration Division
Title Junior Biologist	Date January 15, 1953

JOB COMPLETION REPORT

INVESTIGATIONS PROJECTS

State of Montana Montana

Project No. W-35-R-4 Work Plan No. 1 Job No. 1-D

Title of Job: Big Game Survey in Gallatin (Comparative aerial and ground elk census)

OBJECTIVE: To complete a census and compare methods.

PERSONNEL:

Norman Wortman	- Fieldman and Pilot	- Aerial Census
Dick Hodder	- Range Technician	- Aerial Census
R. F. Cooney	- Director of Wildlife Restoration	- Ground Census
Faye Couey	- Big Game Biologist	- Ground Census
J. E. Gaab	- Unit Biologist	- Ground Census
Dick Hodder	- Range Technician	- Ground Census
Norman Wortman	- Fieldman	- Ground Census
L. C. Clark	- Deputy Game Warden	- Ground Census
Yellowstone Park Officials	- Six men	- Ground Census
National Forest Service Officials	- Nine men	- Ground Census

PROCEDURE: A 140-Cessna was used to make a two hour and one-half complete coverage of the West Gallatin elk range.

A twenty-man ground coverage was made by counting units.

The coverage by air was made on December 16th. The entire West Gallatin Canyon area, including that within Yellowstone Park was flown.

The ground coverage was made on December 30 or two weeks later. Approximately the same area was covered except for several high remote, relatively unimportant segments of winter range.

FINDINGS:

1. Aerial
   a. A well defined elk migration route was observed coming from intermediate range to the upper winter range and mapped. The flight was made December 16th following a storm which encouraged this migration.
   b. Thirteen hundred and sixteen (1316) elk were censused from the air.
2. Ground
   a. Three days were involved, December 29-30-31, in

preparation, counting and returning to stations.

b. Twelve hundred and sixteen (1216) elk were censused from the ground.

CONCLUSIONS:

A more complete check was obtained from the air.

This is of particular interest as the manpower and cost of the air coverage was but a small fraction of that entailed in obtaining the ground census.

Prepared by J. E. Gaab Approved by Robert F. Cooney

Date January 15, 1953

JOB COMPLETION REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-35-R-4 Work Plan No. 2 Job No. 2-B

Title of Job: Hunter Utilization West Gallatin Elk Herd

OBJECTIVE: To determine the harvest of elk.

PERSONNEL: Checking Station personnel, plus supervisor and deputy game warden, unit biologist and Yellowstone National Park personnel.

PROCEDURE: Two checking stations were manned at Grayling and Squaw Creeks as usual. The harvest was observed in the field by all personnel involved.

FINDINGS: 1. Total Game Kill

Species	Adult Male	Adult Female	Young Male	Young Female	Spikes	Total
Elk	26	18	12	5	11	72
Mule Deer	88	13				99
Black Bear	2		1			3

*Note: Only 66 of this total were killed within the West Gallatin River drainage.

a. Seventeen of the 66 elk were taken in Buck Creek
b. The 13 adult female mule deer were taken during a 3-day hunter's choice season.

2. Fifty-six percent (56%) of the successful hunters were residents of Gallatin County.

3. The elk harvest was from resident elk from outside Yellowstone National Park. The mild fall weather wasn't conducive for forcing elk out of the Park and Game Preserves into open hunting territory. However, due to the over-harvest and winter loss last season, a light harvest was recommended to build up the herd to the accepted carrying capacity.

Prepared by J. E. Gaab Approved by Robert F. Cooney

Date January 2, 1953

JOB COMPLETION REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-35-R-4 Work Plan No. 2 Job No. 2-B

Title of Job: Hunter Utilization of Elk in Beaverhead Drainage

Objective: Determine hunter success in relation to the length and type of season and to observe distribution of game and any other factors relating to management.

(Season in this area was set for the 13th, 14th and 15th of November - both dates inclusive - the first two days for branch antlered bulls only and the last day of the season being either sex.)

Personnel: Fourteen Fish and Game Department personnel
Checking station personnel
Game Wardens, Biologists, Supervisor and Pilot

Procedure: Checking stations were established on the Blacktail, the upper and lower Ruby. The hunting areas were patrolled by the State Fish and Game plane one day prior to the opening of the season to establish location of hunters' camps and general areas occupied by the game.

During the three-day season the hunting areas were covered by motor vehicles and on horseback. The plane was grounded because of weather conditions.

The areas covered during this season included the upper Blacktail, the upper Ruby, the Lima Hills, and Canyon Creek.

Findings: 1. There were 76 elk taken from the Blacktail area. Thirty-six of these were adult males. It was noted that the first two days (being for branch antlered bulls only) had a tendency to break up game concentrations and for game to take to cover. The harvest was light because of heavy storms on the second and third days of the season.

2. Fourteen elk were checked out of the Ruby area. The storm which lasted through the second and third day of the season undoubtedly was largely responsible for the light harvest in this area. However, the branch antlered bull limitations on the first two days would no doubt have prevented a heavy reduction in any one locality, such as was witnessed during a three-day either sex harvest in 1950.

3. The harvest of elk in the Lima Hills was also very light. The first day of the season scattered the elk and caused at least part of the herd to cross over into the Irving Creek area of Idaho.

4. Very few if an elk were killed on Canyon Creek. The elk remained in the heavy timbered area of the upper Canyon Creek basin throughout the season. Game remaining on their summer range until so late in the season was believed to be due to the unusually dry, warm fall weather.

Conclusions: It is recommended that the type of season set for this year be continued. It seems apparent that the branch antlered bull season preceding the either sex season is conducive to a well-conducted harvest that can be perpetuated from year to year.

Prepared by Philip South Approved by J. E. Gaab

Date January 3, 1953

JOB COMPLETION REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-35-R-4 Work Plan No. 2 Job No. 2-B

Title of Job: Hunter Utilization of Deer in the Ruby Drainage

Objectives: Determine hunter success in relation to the length and type of season, to observe distribution of game and any other factors relating to management. The hunting season in this area was hunters' choice, mule deer from October 15th through November 15th.

Personnel: Frank Schryer
A. A. Schroeder

Procedure: A checking station was established on the lower Ruby to collect data.

Findings: 1. A total of 424 mule deer were harvested during the 32 day season.
The age-sex ratio was as follows:

Adult males	169
Adult females	154
Young males	56
Young females	39
Spikes	6

2. Approximately 25 percent of the hunters checked were successful in getting a deer. In general, the harvest was quite well distributed over the hunting area and throughout the season. The largest percentages were taken in the Warm Springs Creek and Cottonwood Creek areas. Warm Springs Creek area produced 71 mule deer and Cottonwood Creek area produced 57.

3. Despite the either sex season, more bucks were harvested than does. This seems to indicate that a certain percentage of hunters prefer to shoot bucks even when given a choice.

4. Nineteen of the deer checked through the Ruby station were killed just over the divide in the Madison drainage. These include nine killed on Horse Creek, seven killed on Ruby Creek, and three killed on Standard Creek.

Conclusions: A continuation of the hunters' choice hunting season is recommended for next year.

Prepared by Philip South Approved by J. E. Gaab

Date January 4, 1953

STATE	Montana
PROJECT	W-36-R-3
DATE	January 15, 1953
VOL	III NO IV

QUARTERLY PROGRESS REPORT FOR

INVESTIGATIONS PROJECTS

As Required by

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: Lincoln County Deer Management Study

2. Project Personnel: Robert M. Blair
Owen A. Wilson
Duane P. Couvillion

3. Report of Progress:

Browse Reseeding Study. Fall seedling survival counts were completed on the four one-acre plots formerly established on the project by Jack Schmautz and Ade Zajanc. Two plots, one exclosure and one control, are located on the Wolf Creek drainage and two on Wapiti Mountain. Four different site treatments representing conditions common to logged off areas were applied in individual blocks to each reseeding plot. Treatments applied were burning, scarification, lopping and scattering of slash, and natural (undisturbed) forest floor. In each treated block ten different browse species were planted to determine browse survival in relation to land treatment. The species planted were chokecherry, bitterbrush, snowberry, mountain maple, trailing hollygrape, serviceberry, kinnikinnick, dogwood, rose, and snowbrush.

With the aid of Jack Schmautz and Merton Reed, U.S. Forest Service, Regional Office, Missoula, the statistical analysis of the browse reseeding survival data has been started. Conclusions of this analysis will be presented in a detailed report at a later date.

Pellet Group Plots. During October a total of 189 pellet group plots were established in the Wolf Creek (141 plots) and Cow Creek (48 plots) drainages. Additional plots will be set up on other strategic winter ranges in the Fisher River area during the spring and fall of 1953.

All plots were established on strips randomly located on the winter range of the two drainages. Plot centers were set every four chains on Wolf Creek and every three chains on Cow Creek, extending from the lower to the upper limits of the predetermined winter range and at right angles to the main drainage.

Each pellet plot, 1/500 acre in area (5.27 feet radius), was cleared of all pellets at the time of its establishment. During the spring of 1953 these same plots will be re-examined and the number of pellet groups in each recorded for the the determination of deer populations. Results of this study will be analyzed and presented in a report following the spring reading.

Deer Traps and Trapping. Extensive repairs were completed on ten box-type deer traps. These have been placed at various locations in the Fisher River area in preparation for the coming trapping season. Trap locations are as follows:

Alder Creek	1 trap
Cody Creek	1 trap
Lower Wolf Creek	3 traps
Cow Creek	2 traps
Snell Creek	1 trap
McKillop Flats	1 trap
Spring Creek	1 trap

Technical data will be obtained from all deer trapped and each animal will be ear tagged and marked (on rump patch) with a pre-determined color designating the specific area where it was trapped. These various color markings are to be used in determining the herd movement when the mass census count is made in the spring of 1953.

In order that weather influence may be incorporated with the technical data obtained from trapping, a weather station has been set up on Cow Creek. This location was chosen in an effort to obtain an average for the entire trapping area. The station includes a maximum and a minimum thermometer and a precipitation gauge. Weather data will be recorded daily throughout the deer trapping season. Establishment of this weather station was due largely to the cooperation of the U. S. Weather Bureau at Missoula, where the necessary instruments were obtained.

Hunting Season. Considerable time was spent during this quarter with respect to the 1952 deer and elk hunter harvest in the Wolf Creek-Fisher River area. This area includes all of the lower Fisher River and its tributaries north of U. S. Highway No. 2, a unit of approximately 232,000 acres.

Even though the regular buck season opened in Lincoln County on October 15, this project concentrated its efforts on the collection of technical data during the hunters' choice season on mule and white-tailed deer. This season extended from November 8 through November 20, inclusive of the 5 day season extension granted. During this period, data was also recorded on the elk harvest, the season for branch antlered bulls in Lincoln County being from November 1 through November 15.

Three checking stations were maintained by the Lincoln County project; however the results from only two of these are of direct interest to the project. The two stations for this unit were located at strategic points to intercept the main traveled roads into the principal area of study.

Standard Fish and Game Department checking station form cards were used to record all desired data concerning hunters and their kill. Technical data concerning the kills included species, age of all deer by dentition, sex, length of hind foot, weight, number of points and antlers, diameter of antlers one inch above the burr, and the condition of does, either wet or dry. Lower jaws were collected, where possible. Several reproductive tracts were also collected with the intent of gathering information on the productivity of the deer herd in this unit.

During the hunters' choice season 1,133 hunters harvested 38 mule deer, 222 white-tailed deer and 6 elk from the area covered by checking stations in this unit. This represents a deer hunter success of 22.9 per cent.

A detailed report will be submitted following the evaluation of all information collected in this unit.

Submitted by:

Name Robert M. Blair

Title Unit Biologist

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-36-R-3 Work Plan No. X

Title of Work Plan: Thorough Investigation of Wildlife Resources Within and Adjacent to the Proposed Floodage Basin of the Libby Dam (Army Engineers Corps) on the Kootenai River in Lincoln County

On December 9, 1952, Pat Couvillion, Biologist, employed under the Lincoln County Deer Study program (W-36-R-3) was assigned the definite responsibility of carrying out an expanded segment of the above study, namely, a detailed examination of the wildlife resources within and adjacent to the proposed Libby Dam floodage basin on the Kootenai River. During the relatively short time remaining within the report period, a ground check of this area has been made, familiarizing myself with the general problems having to do with big game, deer, both mule and white-tailed, elk, moose and bighorn sheep, as well as game birds, both native and introduced, including all types of waterfowl and also fur bearers.

An excellent five and one-half inch to the mile scale contour map has been obtained from the U. S. Corps of Engineers. Overlays are being prepared upon which appropriate data regarding range and numbers of various wildlife species will be plotted. In addition, a one inch to the mile U. S. Forest Service map is being used to illustrate overall coverage.

It is expected that considerable detailed information will be available on this important segment of the project for the next quarterly.

Prepared by D. P. Couvillion Approved by Robert F. Cooney

Date January 15, 1953

STATE Montana
PROJECT NO. W-37-R-4
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

INVESTIGATIONS PROJECTS

As Required by

FEDERAL AID IN WILDLIFE RESTORATION ACTS

1. Title of Project: Game Range Predevelopment Survey

2. Leader: Richard L. Hodder, Range Biologist

Owen A. Wilson, Range Biologist
Carter Rubottom, Technical Assistant

3. Report of Progress:

Work Plan I: Gallatin Winter Elk Range

Job I-A: Range (Forage Inventory) Survey
Inactive during report period.

Job I-B: Forage Production and Utilization Transects
This program was carried out as planned; Production-Utilization transects were clipped and clippings stored for drying and weighing.

Job I-C: Spring Use and Trampling Tests
Discontinued indefinitely.

Job I-D: Browse Withstandability Tests
Information and data from the field plots in the Porcupine area have been assembled for final report.

Job I-E: Photo Plot Transects (Trend Study)
Inactive during this quarter.

Job I-F: Forage Restoration Studies

a. Grass Revegetation
Seed samples were collected and sent to the State Seed Laboratory for analyses.

b. Browse Revegetation
Fifteen hundred horizontal juniper cuttings were made in the Sun River area for callousing and rooting at the Montana State College greenhouse for future planting on the Gallatin winter range.

Job I-G: Weather Data
Information and data were accumulated and recorded according to plan.

Job I-H: Seed Analysis
Seed samples were collected and sent to the State Seed Laboratory for analyses.

Job I-I: Fertilizer Trials
Inactive during report period.

Job I-J: Herbarium
Proceeding according to plan.

Job I-K: Stomach (Paunch) Analysis
Inactive during report period.

Work Plan II: Sun River Winter Elk Range

Job II-A: Winter Elk Range Examination
This program has not yet started because of unduly late winter conditions.

Job II-B: Photo Plot Transects (Trend Study)
Carried out to completion for this season during last quarter.

Job II-C: Range (Forage Resource) Survey
This job was continued through this quarter. Checking of the field work done this summer, storing and filing materials, clipping of grass plots on various types of vegetation to determine weights of forage produced, moving materials and information to the Gallatin for the inside winter work--all this was carried out during this last quarter.

Work Plan III: Blackfoot-Clearwater Game Range Studies

Job III-A: Forage Evaluation and Nutrition Studies
The over-all plan and program for this year's program was discussed by all concerned and approved. Materials to accomplish the objectives set up were obtained from the Sun River Game Range, so that findings could be applied directly to the Sun River Game Range forage inventory now in process. This natural weathered feed from Sun River has been shipped to the Blackfoot-Clearwater Game Range and stored for later use.

Submitted by:

Name Richard L. Hodder

Title Range Biologist

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

STATE Montana
PROJECT NO. W-38-R-4
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

SURVEYS AND INVESTIGATIONS

As Required By

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: Upland Game Bird Surveys and Investigations

2. Leader: William R. Bergeson, Biologist

3. Report of Progress:

Work Plan I: Ring-necked Pheasant Survey and Investigation - State-wide

Job I-A: Pheasant Breeding Populations and Production
Inactive during quarter.

Job I-B: Pre- and Post-Season Sex Ratios, and Hunter Harvest
Progress Report attached.

Job I-C: Post Card Survey of Hunter Harvest
During mid-December a total of 5,200 post card questionnaires were prepared and mailed to every 30th name drawn from the list of general license holders. To date, nearly two thousand cards have been returned. Analysis has not been completed and a completion report will be submitted in the January-March, 1953 quarterly.

Job I-D: Pheasant Mortality and Causes
Inactive during report period. All observations are recorded and will be incorporated in report form when warranted.

Work Plan II: Survival of Game Farm Reared Exotics

Job II-A: Survival Value of Game Farm Reared Pheasants
No returns from cocks released in the Bitterroot in 1950 during the past year. No band recoveries were made from experimental birds released in the Fairfield bench area in 1947 and 1948. One band from the 1948 Warm Springs Game Farm production was recovered during the past hunting season northeast of Conrad.

Job II-B: Survival Value of Chukar Partridge
Progress Report attached.

Job II-C: Survival Value of Valley Quail
Present Status Report attached.

Work Plan III: Ring-necked Pheasant Ecological Survey - Flathead Valley
Completion Report submitted; editing in progress.

Work Plan IV: Pheasant Habitat Development Investigation
Inactive during quarter.

Work Plan V: Prairie Grouse Management Study

Job V-A: Range and Distribution of Prairie Grouse Species
Inactive during quarter.

Job V-B: Population Trends and Breeding Potential Studies
1952 Sage Grouse Brood Studies Segment: Completion Report attached.

Job V-C: Prairie Grouse Experimental Areas
Proceeding according to schedule.

Job V-D: Effect of Civilization on Prairie Grouse
Inactive during quarter.

Job V-E: Habitat Development
Inactive during quarter.

Job V-F: Life History and Biology of Prairie Grouse Species
Notes and data are being gathered and will be submitted in report form when warranted.

Work Plan VI: Mountain Grouse Management Study

Job VI-A: Determine Range and Relative Abundance of Mountain Grouse Species
Inactive during quarter.

Job VI-B: Experimental Grouse Management Study Areas - Bitterroot
Progress report attached.

Job VI-C: Mountain Grouse Ecology and Life History Study
Grouse observations are recorded and will be incorporated in a report when warranted.

Submitted by:

Name William R. Bergeson

Title Game Bird Biologist

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-38-R-4 Work Plan No. I Job No. I-B

Title of Job: Pre- and Post-Season Sex Ratios, and Hunter Harvest

Flathead Area:

A total of 1,904 returning hunters with 43 Huns and 2,976 cock pheasants were checked. Average success was 1.56 cocks per hunter--highest average success during the past four years checked.

Over seventy-seven percent of the kill occurred during the first week of the season. Hunter numbers decreased rapidly after the first few days, presumably due to difficulty in finding pheasants and the conflicting either sex deer season.

Based on figures of the automatic traffic counter at Ravalli, there was an increase of 16 percent in the number of hunters coming from the south--Missoula, Butte and vicinity. An increase that would account for about fifteen hundred hunter's vehicles was recorded over the preceding Sunday total. Based on these traffic counter figures an increase of over one hundred twenty percent in hunter numbers has taken place between 1940 and 1952.

Based on checking station figures and pre- and post-season sex ratios using the Kelker index it is indicated that 29,000 cocks were harvested by 16,000 hunters in 1952. By this same method it was calculated that 23,000 pheasant cocks were taken by 15,000 hunters in 1951.

Approximately the same ratio of young to adult cocks was observed in 1952 as in past years--4.34 young per adult being checked. The peak of the hatch in 1952 as in 1951 occurred about the second week in June based on wing feather development of the young birds.

One cock was reported shot and lost for each 7.4 bagged (about the same report as last few years).

The sex ratio based on field flushing counts before and after the season was 1.43 hens per cock before and 4.42 hens per cock after the season.

More detailed analysis of this data is included in the Flathead Ecological Study Report now in process of publication.

Bitterroot Area:

A checking station was maintained only on the opening day of the season as too few hunters to warrant checking were using the area. On the opening day 71 hunters with 66 cocks and 8 Huns were checked. This sample was deemed too small to arrive at age, calculated kill, or other data.

Probably the decrease in Bitterroot hunters helped effect the increases noted in the Flathead area.

The sex ratio based on road counts of 213 pheasants in the valley after the season was found to be 1.6 hens per cock; this is indicative of light hunting pressure and the high amount of protective cover available.

Sidney Area:

A total of 530 hunters with 527 cocks were checked. These hunters expended 1,979 hours or 3.75 hours per bird.

Fifty-eight percent of the kill occurred the first day; 20 percent the second Sunday; and 5 percent occurred the last Sunday.

Eighty-three percent of the birds checked were young. One hundred twenty-three birds were reported shot and lost.

Fairfield and Conrad Area:

A checking station was operated on the western outskirts of Great Falls on Highway #89-91 where the bulk of the Great Falls bird hunters would be intercepted returning from the Fairfield and Conrad areas. This station was operated from 1:00 P.M. to 5:30 P.M. on the opening day, the following two Sundays, and on November 11, the final day of the season.

Montana's state-wide 1952 pheasant and Hungarian partridge season opened at noon October 26 and closed at 5:00 P.M. November 11, a period of 17 days. Bag and possession limit consisted of three cock pheasants, or three partridges, or an aggregate combination of the two species. Shooting hours were noon to 5:00 P.M. on the opening day and 8:00 A.M. to 5:00 P.M. the remainder of the season.

Cooperation from hunters at these voluntary checking stations was generally quite good, but the recent arrest and conviction of Department personnel on a game law violation charge was reflected in the attitude of contempt displayed by many hunters who deliberately by-passed the Great Falls checking station. Accordingly, it is believed that a correspondingly smaller sample of Great Falls hunters was sampled than in preceding years.

A total of 803 hunters with 1,397 cock pheasants and 35 Huns was checked. The average hunter bagged 1.74 cock pheasants during the season which is considerably greater than any average bag during the past four years and compares with the 1.35 birds per hunter obtained during the 1951 season in this area.

The old-young ratio based on 1,080 birds examined was 5.17 young per adult. A total of 125 birds was reported shot but not recovered. A total of 1,201 hours was expended by 803 hunters bagging 1,397 birds, or an average .86 hours per bird taken. It is probable that only the more successful hunters stopped voluntarily at this checking station, thus accounting for the high success.

Based on figures obtained from the Montana Highway Department automatic traffic counter there were 23 percent fewer vehicles recorded on opening day this year compared with the opening day of the 1951 season. The increase in traffic compared with the preceding Sunday amounted to 2,052 vehicles in 1952.

An aerial census of hunter's cars was made on the opening day of both the 1951 and 1952 seasons. Flights were started at noon when legal hunting began during both years. Censuses both years were made by flying east-west strips within the boundaries of the Greenfield Irrigation Project which encompasses 140 square miles. All cars, whether on or off the road, were tallied; however, allowances were made for farm trucks and cars considered to belong to local residents.

In 1951, a total of 923 hunters' vehicles were tallied or 6.6 cars per square mile; in 1952, 987 vehicles were counted, or 7.0 vehicles per square mile.

More detailed analysis of this data will be included in a forthcoming completion report.

Prepared by Fred Hartkorn and W. R. Bergeson Approved by W. R. Bergeson

Title Biologists

PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-38-R-4 Work Plan No. II Job No. II-B

Title of Job: Survival Value of Chukar Partridge

Ferry Basin Area - Sanders County

The chukars in Ferry Basin were observed several times between the 1st and 12th of October. One chukar was observed to have been killed by a raptor.

The main flock of chukars released in Ferry Basin this year moved out of this area sometime between the 12th and 20th of October. The area was searched intensively after the 20th, but only six of the banded birds (two of which were crippled) could be located; these six were observed from time to time.

The main group of chukars was not located until December 11th when they were found in the Valley Creek drainage. This is approximately eighteen air-line miles from the release site in a southeasterly direction. About sixty birds were seen on the first observation in this area.

It is not known exactly when the birds moved into the Valley Creek area. They were reported to have been there during the pheasant season which opened on October 26th. During the season at least three of them were shot and the bands recovered. It is believed that these birds received quite a bit of hunting pressure during the pheasant and Hun season and it is reported that they took care of themselves very well. On December 19th a total of 86 chukars was observed in the area. They were in three separate coveys numbering 49, 31 and 6 birds.

The area where the chukars have been observed in Valley Creek is heavily over-grazed and largely covered with cheatgrass and moth mullen. There are a few cultivated fields in the area. The chukars were seen feeding in a harvested wheat field several times. One chukar was killed by a goshawk and an examination of the crop contents showed that it had been feeding on waste wheat.

The release site at Perma was visited on December 31st, and two coveys of chukars were found near the Forest Service horse corrals. One group contained 13 birds and the other 8; these are broods from the birds planted last year. One group of 10 birds was seen that may have been some of the same birds seen previously. These birds were all found within one-quarter mile of the horse corrals and yet the men working there had not seen a chukar for two weeks or more. It is possible for chukars to be living in an area near people and yet be so inconspicuous that they are rarely noticed.

Bluewater Hatchery Area - Carbon County

This area was visited on the 16th and 17th of October. The rancher here reported one large group and several smaller groups in the area. One group of over one hundred birds was flushed on a hillside near the point of release and two smaller groups of 16 and 22 were observed. The remains of two dead chukars were found along Bluewater Creek. The cause of death was not determined. Residents of the area believe that they have seen several broods of young birds in the area - offspring of the chukars planted in the fall of 1951.

Fly Inn Area - Big Horn County

Eighteen adult birds were observed in this area on October 15th and 16th. The area was covered quite thoroughly with dogs to try and locate the broods that had been reported previously. No young birds were located and the residents in the area had not observed any for a month. About the first of September at least two broods were reported by three different observers. The young birds have not been seen since that time and it is considered doubtful if any of them survived.

Rapelje Area - Stillwater County

A flock of about one hundred chukars was observed here on October 14th. These birds were found in a harvested oat field, and the local people report seeing them here frequently. No additional coveys were located in the area. Some snow had fallen in this area on the previous night, but most of it had melted by noon.

Big Hole River Area - Beaverhead and Madison County

A group of 25 chukars was observed at the 1951 release site area during the last week in December. The local rancher reported these birds began drifting in early in December and he had seen 75 birds in his field shortly before Christmas. A cattle association rider was reported to have observed a large group of these birds during the past fall at the head of Camp Creek which lies 18 air-line miles north of the release site beyond the McCartney Mountains. This report was not verified because of the impassable road conditions prevailing during late December.

Prepared by Wesley Woodgerd and W. R. Bergeson Approved by W. R. Bergeson

Title Biologists

PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-38-R-4 Work Plan No. II Job No. II-C

Title of Job: Survival Value of Valley Quail

The valley quail situation does not look promising. Their behavior seems to fit very well into Leopold's definition of a straggling failure.

One pair was seen near Crow Creek last spring. Two birds were reported across the Flathead River from the Moiese Valley during the summer; one brood was reported in Moiese Valley; two birds were seen along the Flathead River below Dixon in the fall and the ranchers in the Little Bitterroot reported that they saw an occasional quail there a year ago. Apparently these birds are scattered over a wide area and spread out so thinly that observations on them are rare. Any type of hunting restrictions to try and save these remaining few birds is probably not in the best interests of the sportsmen. If valley quail were in any measure successful in this area it seems reasonable to suppose that there would be more evidence of their presence. A large part of the area where they could be expected to be found was covered with dogs while searching for chukar partridges after their dispersal from the Perma Horse Range.

Prepared by Wesley Woodgerd Approved by W. R. Bergeson

Title Junior Biologist

COMPLETION REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-38-R-4 Work Plan No. V Job No. V-B

Title of Job: Population Trends and Breeding Potential Studies
(Sage Grouse Brood Studies--1952)

Sage grouse brood studies were carried out, principally on the Fergus-Petroleum study area, in an effort to obtain information for determining yearly production and trends.

The majority of the counts and observations were made on established routes in Fergus, Petroleum and Meagher counties by the writer and student assistant, Allan L. Lovaas, while supplemental counts were made by Deputy Game Wardens Friede, Hollibaugh, Linville, and Maloit, in their respective districts.

Methods

Counts were made by two observers while slowly driving over the routes. For each brood observed, the following information was recorded: brood size, time and cover type.

The cover throughout the length of the route was classified to sage (grazing land) and cultivated (grains and alfalfa) types. The amount of each type found immediately adjacent to the road was determined by measurements made to tenths of a mile.

Brood size counts were made by deputy game wardens incidental to their routine work.

Findings and Discussion

The temperature and precipitation data for this area are given in Table I. This same general condition of mild, dry weather prevailed throughout most of eastern Montana, which should have contributed to favorable production. As was noted by other workers in this State, (Freeman, Wynn G. and Gerald Salinas, 1/) the spring season seems advanced over 1951 by at least one week.

1/ Freeman, Wynn G. and Gerald Salinas "Waterfowl Breeding Ground Survey, 1952, In Montana" P-R Quarterly, Vol. III, No. III, 1952.

Table I. Temperature and Precipitation for the Study Area. February to July, 1952*

	TEMPERATURE				PRECIPITATION	
Month	Average F	Dep. from Normal	Maximum	Minimum	Total Inches	Dep. from Normal
February	27.9	4.5	63	-13	.76	.37
March	28.9	-3.1	65	- 3	.10	-.84
April	49.3	4.3	87	18	.49	-.53
May	53.7	-0.8	78	26	3.65	1.39
June	62.2	2.6	93	34	.85	-3.28
July	66.6	-3.2	100	46	.68	- .82

The occurrence of newly hatched broods gave some indication as to the peak of hatch. These data, supplemented with limited observations on mating activities and two nest records, suggested that the peak of hatch occurred between May 25 and June 7. As determined by brood observations the earliest and latest hatching dates were approximately May 18 and June 25, respectively.

The relationship between the time of day and occurrence of broods along the routes is shown in Table II. These figures show the numbers of broods along roadways to be greatest in early morning and late evening with the morning hours of 6 to 8 being the most productive hours for brood counts. The high of four broods/hour shown from 8 to 9 P.M. is based on a small sample and is believed to be erroneous when compared with the decline of evening activity (6 to 8 P.M.) shown with a larger sample.

*U. S. Weather Bureau Reports.

Table II. Hours and Brood Occurrence Along Brood Count Routes.

Time	Hours of Driving	Total Broods Observed	Broods/Hour
5-6 A.M.	3	5	1.7
6-7 A.M.	9	27	3.0
7-8 A.M.	10.5	35	3.3
8-9 A.M.	6	9	1.5
9-10 A.M.	1.5	3	2.0
10-11 A.M.	2	0	0.0
11-12 A.M.	2	2	1.0
12-1 P.M.	1	2	2.0
1-2 P.M.	2	0	0.0
2-3 P.M.	2	1	0.5
3-4 P.M.	2	0	0.0
4-5 P.M.	2	2	1.0
5-6 P.M.	2	4	2.0
6-7 P.M.	3	6	2.0
7-8 P.M.	3	5	1.7
8-9 P.M.	.5	2	4.0

Table III summarizes all of the population data from the established routes on a weekly basis from June 8 through July 12. No data were gathered for the week of June 22-28. Attempts to gather brood data following July 12 were discontinued due to intermingling of the broods.

Table III. Summary of Number of Broods and Adults Observed on Established Routes on the Study Area.

	BROODS			ADULTS		
Date	Number Broods	Average No./Brood	Number Brood/Hr.	Number Adults	% Adults In Total	Number Adults/Hr.
June 8-14	9	6.4	2.7	69	54.3	20.7
June 15-21	19	4.5	2.5	72	45.6	9.6
June 22-28	-	-	-	-	-	-
June 21-July 5	28	4.4	4.9	112	47.4	19.7
July 6-12	15	4.3	8.3	32	33.3	17.7
Total	71	4.7	3.9	285	46.1	15.6

The average brood size data indicate a decrease of 2.1 birds/brood in the five weeks that counts were made on the area, with 90 percent of this decrease appearing during the first two weeks. This would seem to substantiate the belief that the peak of hatch occurred in late May and early June and that the decrease in brood size is shown for the early stages of this majority of broods.

However, the number of broods/hour shows an increase throughout the entire period which corresponds to the decrease in the percent of adults in the population as the number of adults/hour did not decrease appreciably.

This increase in number of broods/hours is believed to be due to the maturing of the broods. As they mature, their reaction and larger size tend to make them more easily seen.

A summary of all the brood data (established trend routes plus deputy game warden reports) is given in Table IV. The increase in brood size shown in the last two weeks during which counts were made (July 6-12, 13-19) is believed due to grouping of broods. This was found to be occurring on the study area at this time and comparative observations made between the study area and points throughout the eastern portion of the State indicate a similar sequence.

Table IV. State-wide Brood Size Frequency - June 8 - July 19.

Brood Size	Number of Broods						
	June 8-14	June 15-21	June 22-28	June 29-July 5	July 6-12	July 13-19	Total
1		1		5			6
2		5	2	3	5	2	17
3		2	1	8	7	2	20
4		5	1	7	9	6	28
5	5	3	2	2	4	7	23
6		5	2	1	6	8	22
7	3	3		2	7	4	19
8		1		2	1	1	5
9	1	1	1	1	2		6
10	1			1			2
11	1		1	1			3
No. Broods	11	26	10	33	41	30	151
Total Young	76	120	53	139	198	153	739
Ave. Brood	6.9	4.6	5.3	4.2	5.8	5.1	4.9

Figure I graphically illustrates the percent of sage type found along established routes and its use by broods during the months of June and July. Patterson (1952) states that 92 percent of the sage grouse nests on his Wyoming study area were located beneath sage cover. In Montana this preference for sage is also indicated by the high percentage of young broods found there. The data for July show a decided movement out of the sage into cultivated crops. Since most of the cultivation is along the creek bottoms, the higher occurrence of broods in cultivated crops may have been incidental to a general movement into

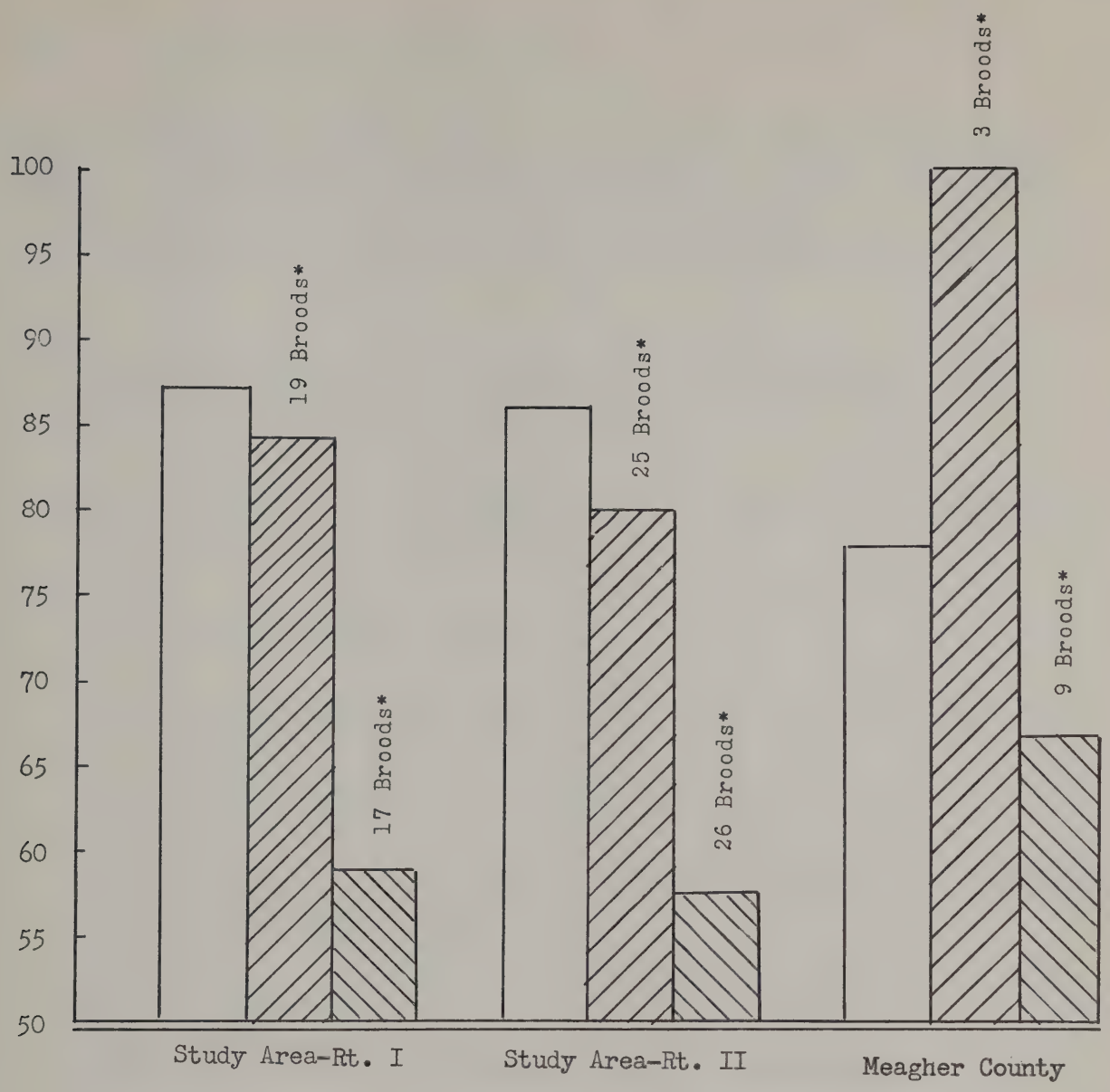


FIGURE I — PERCENT OF SAGE BRUSH FOUND ALONG ROUTES AND PERCENT OF BROODS OBSERVED IN SAGE IN JUNE AND JULY.

Percent of sage brush found adjacent to route.

Percent of broods observed in June.

Percent of broods observed in July.

* Total number of broods observed.

areas of more (lush) vegetative growths.

Factors concerning juvenile mortality were not ascertained. Road kills are frequent in areas where arterial highways intersect sage grouse habitat. The presence of broods in cultivated areas seems to occur during regular feeding periods in early morning and late evening with the birds retiring to adjacent sage cover at other times. Consequently, little, if any juvenile mortality is believed to occur due to agricultural activities.

Summary

1. Sage grouse brood studies were conducted during 1952, the majority of the data being gathered on established routes on a study area with spot counts being made state-wide.

2. On the study area, the following information was recorded: brood size, time and cover type. The percent of sage and cultivated cover adjacent to brood count route was determined.

3. Temperature and precipitation data show mild dry weather over the study area throughout the brood season.

4. The peak of hatch as determined by brood size and occurrence appeared to have occurred between May 25 and June 7.

5. Brood activity along the route was greatest during early morning with the hours of 6-8 A.M. being the most productive for brood observations.

6. Average brood size declined from 6.4 to 4.3 birds/brood on the study area from June 8 to July 12. Grouping of broods after July 12 prevented distinguishing individual broods.

7. Broods were found to occur in areas of cultivation to a greater extent in July than in June.

8. Factors concerning juvenile mortality were not determined.

Literature Cited: Patterson, Robert L. 1952. The Sage Grouse in Wyoming. Sage Books, Inc., Denver. 481pp.

Prepared by Robert L. Eng Approved by William R. Bergeson

Title Junior Biologist

PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-38-R-4 Work Plan No. VI Job No. VI-B

Title of Job: Experimental Grouse Management Study Areas--Bitterroot Area

The East Fork of the Bitterroot drainage was open to grouse hunting eight days--September 14 to 22--along with most of the State. The West Fork drainage was closed as it had been in 1951 to serve as a sample non-hunted area. Censuses were made over the same routes in each area before and after the season. Results are shown in Table 1.

Table 1. Pre- and Post-season Grouse Observations in the Bitterroot Study Area

Area	Time	Miles Covered	All Grouse Observed	Blue Grouse Observed	Ruffed Grouse Observed	Franklin's Grouse Observed
East Fork Area (open)	Pre-season	41	42	28	8	6
	Post-season	41	26	22	3	1
West Fork Area (closed)	Pre-season	54	37	8	29	0
	Post-season	54	49	31	18	0

The findings in the East Fork area suggest a reasonable harvest of all species with ample brood stock remaining.

Observations in the West Fork area indicate that late September and early October may be the time to get optimum counts of blue grouse in that more were seen at that time than in late August and early September.

Due to the relatively small size of the samples it is possible to obtain in each area each year, any conclusions should be reserved till findings from several years are available.

Forty-one miles of census route in the East Fork area (same routes as above) were covered in mid-November and ten blue grouse were observed.

Prepared by Fred Hartkorn Approved by William R. Bergeson

Title Biologist

STATE Montana
PROJECT NO. W-39-R-4
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

SURVEYS AND INVESTIGATIONS

As Required By

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: Waterfowl Surveys and Investigations

2. Leader: Wynn G. Freeman, Waterfowl Biologist

3. Report of Progress:

Work Plan I: State-wide Census
Inactive during report period.

Work Plan II: Waterfowl Production Studies
Inactive during report period.

Work Plan III: Evaluation of Hunter Harvest

Job I-F: Study of Hunter Harvest of Waterfowl
Voluntary checking stations were run during the first week-end of the hunting season. Bag checks were made at various points throughout the season. Postal card questionnaires were sent to a random group of waterfowl hunters. Completion report is being prepared and will be completed as soon as postal cards are returned.

Work Plan IV: Waterfowl Banding
Inactive during report period.

Work Plan V: Pre-Acquisition Studies of Development Areas

Job I-H: Pre-Acquisition Study of Freezout Lake
The waterfowl usage study of Freezout Lake was completed.

A nesting study, involving an area in which skunks were controlled and a check area where there was no skunk control, was completed.

Population trends and brood counts were taken weekly.

Several meetings with the Greenfields Irrigation Commissioner were held in order to explain fully the urgent needs of the proposed acquisition.

Job I-I: Pablo Refuge Management Investigation
An analysis of the hunting activities in this area will be included in the report being prepared for Job I-F.

Job I-J: Blackfoot-Clearwater Habitat Development Investigation on State Lands
Inactive during report period.

Job I-K: Sun River Waterfowl Habitat Investigation on State Lands
Inactive during report period.

Job I-L: Investigation of Potential Waterfowl Habitat for Development
Engineering data are being compiled and analyzed to determine the feasibility of the Chain-O-Lakes project.

A report is attached regarding certain State Water Conservation Board dams located in eastern Montana. These dams and resulting reservoirs were examined in order to determine their potential value as state-owned waterfowl development areas.

Engineering reconnaissance was begun in the field to determine the feasibility of the Brown's Lake habitat development.

A phase of the reconnaissance engineering of the Muddy Creek habitat development was completed.

Office work was continued on the Lake Helena, Brown's Lake and Chain-O-Lakes areas.

Submitted by:

Name Wynn G. Freeman

Title Waterfowl Biologist

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-39-R-3 Work Plan No. V

Title of Job: Investigation of Potential Waterfowl Habitat for Development

The State Water Conservation Board has taken over a number of old W.P.A. dams in the past years, for a small fraction of their original cost. The Board has taken out easements to the land covered by these projects, which give them the right to store water for irrigation purposes. Landowners using water from these projects pay the board for the water they use, until the Board has been reimbursed for their investment. At that time, if there is a single owner, the easement is released; or if there are several owners, the easements are kept in effect and the owners, paying off the investment, receive primary water rights to the project.

On a number of these projects, the Water Board has received no reimbursement and has assumed that no use was made of the water for irrigation purposes. Mr. W. F. Kruckeberg, Water Board Field Engineer, felt that if some of these projects were suitable for fish or waterfowl, and if no irrigation use was contemplated on them in the future; they could be transferred to our Department, and the public could derive some benefit from them through fishing and hunting.

The easements mentioned above are non-transferable, and if the Fish and Game Department were to take over any Water Board project, the easement would be returned to the owners by the Board, and new easements taken out by our Department to store water for fish and game. The Department would also have to reimburse the Board for their original investment in the project.

Mr. W. F. Kruckeberg, accompanied by Richard Smith, Waterfowl Biologist, and Arthur Whitney, Fishery Biologist, made an inspection trip to seven of these projects November 19th through 23rd, for the following purposes:

A. To interview landowners to determine:

1. Whether or not any irrigation use was planned from the project in the future.

2. If landowners would give the Fish and Game Department an easement to store water for fish or waterfowl use, when the Water Board released their present easements.

B. To determine if the projects were suitable for fish or waterfowl.

I. North Winnifred Dam, Fergus County

A. Opinion of Landowners

1. No major irrigation use is planned for the project. All owners use the project for stock water and if the reservoir is to be fenced, access lanes should be left for cattle. One owner expressed a desire to put in a small pump to water a home vegetable garden, but that should not take enough water to seriously impair the reservoir.

2. Easements

P. J. Heggeman, Tox Popnoe, and Monk Ward, the three landowners on whose land the reservoir stands, expressed willingness to give easements to the Fish and Game Department.

B. Suitability for Fish

Soundings made on November 28, 1952, showed a maximum depth of 12 feet, with most of the main area of the pond near the dam being 8-9 feet. The present level is about 5 feet below the spillway, or maximum spring level. Two residents interviewed expressed the belief that the present level is the lowest they have observed in this pond, however, they would not commit themselves on how much lower it now is. Even if the pond normally went into the winter with two feet more than it now has, it would put it barely within our present requirements for fish, and it is not felt that the necessary expense of taking over this project could be justified from a fisheries standpoint.

According to local residents (no stocking record can be found) the dam has been planted twice with fish, once with trout and later with bass and bullheads. Some success was reported in the first few years after planting, but no one has fished the pond in the last few years.

C. Suitability for Waterfowl.

As indicated by 1952 summer and fall observations, the reservoir is used considerably as both a breeding and resting place. The upper half affords good protective cover, which was grazed only lightly in the late summer and fall of 1952. Contemplated fencing would insure protection of this cover for both nesting and

rearing. Since the landowners use the reservoir for stock watering, access lanes would be necessary.

In the event the reservoir is stocked with fish, the area would be heavily fished and used by boats. This disturbance would not be favorable to waterfowl production and the waterfowl division would not feel justified in authorizing the purchase of the reservoir under those conditions.

II. Schwartz or Deer Creek Dam, Dawson County

A. Opinion of Landowners

1. Irrigation. Mr. Schwartz was the only landowner contacted, and he expressed the opinion that no irrigation was contemplated from this dam. The headgate has been ripped out, and the dam is practically dry.

2. Easements. Mr. Schwartz also said that all the owners but one, Agnes Lewis, would be in favor of giving easements to the Fish and Game Department, but that Lewis would be against such a move. However, investigation of the landownership disclosed the following: The land now owned by Lewis was owned by W. H. Villet when the Water Board took over the project and took out an easement to store water on 32.4 acres of his land. Dawson County later took over Villet's land, including the area covered by easement. When Lewis bought the land the 32.4 acres were withheld from her deed, so that this land is still owned by Dawson County.

However, Lewis does own the land over which the spillway runs, and this land has been eroded somewhat during the years the reservoir held water. Mr. Kruckeberg suggests building an internal spillway in the dam, utilizing the present drain tube. He estimates the cost of this structure to be less than one thousand dollars. A legal question which should be settled before a decision is made on this pond is: If the spillway does not handle all the water in a year of heavy runoff, and the present spillway is eroded further by running water, can Lewis sue the Department for damages?

B. Suitability for Fish

The maximum depth to spillway level would be about seventeen feet, and roughly twenty percent of the pond should be twelve to fifteen feet deep. The Fish and Game Commission had a lease on this pond from June 1, 1942 to June 1, 1947; and according to Mr. Schwartz, the pond afforded good fishing until the headgate was torn out. If the legal questions regarding ownership and storage of water can be settled, so that the maximum water level can be maintained, the pond will be suitable for fish.

C. Suitability for Waterfowl

If the headgate is repaired and the dam filled with water, the reservoir will fulfill the fishery department requirements for stocking. The dam has been a popular fishing spot in the past for the residents of Glendive particularly and would undoubtedly be stocked again. Due to the past popularity and the anticipated use of the reservoir, the area would not be considered desirable for waterfowl production from the disturbance factor. It is not felt that any expenditure would be justified from a waterfowl standpoint under those conditions.

III. Williams Dam, Garfield County

The dam is washed out on one end, and the owner wants to repair it and use it for irrigation.

IV. Billings Dam, Garfield County

This dam has never been over one-third full (5-6 feet depth - maximum) and is unsuitable for fish. The owner has used some water for irrigation and wants to continue doing so.

V. and VI. Jones and Love Dams, Custer County

The ownership of the land these dams are on has changed and the new owner was not at home. The dams could not be located in the time allotted to this inspection trip. They will be inspected by the Fishery Biologist in Miles City at the earliest opportunity.

VII. Switzer Dam, Treasure County

This land has recently changed hands, and the new owner wants to use the water for irrigation.

Prepared by Richard H. Smith Approved by Wynn G. Freeman

Date January 15, 1953

STATE Montana
PROJECT NO. W-49-R-2
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

INVESTIGATIONS PROJECTS

As Required by

FEDERAL AID IN FISH AND WILDLIFE RESTORATION ACTS

1. Title of Project: Fur Resources Survey and Investigations

2. Leader: Fletcher E. Newby, Junior Biologist

3. Report of Progress:

Work Plan I: Determination of the Economic Importance of the Montana Fur Resource.

Job I-A: Annual Yield and Income from the Fur Resource as Determined by Examination of Dealer Records.
Proceeding for 1951-52 season.

Job I-B: The Annual Fur Harvest as Determined from Analysis of Trapper Report Cards.
Inactive during report period.

Work Plan II: Survey of Fur Animal Distribution, Habitat and Population Status.

Job II-A: Extensive Survey of Fur Animal Distribution, Habitat and Population Status.
Proceeding.

Job II-B: Muskrat Population Trends.
Inactive during report period.

Job II-C: Survey of Beaver Distribution and Status in the Jefferson Basin.
Progress report attached.

Job II-D: Population Status and Movements of Marten.
Proceeding. Preliminary work in the North Fork of the

Flathead River drainage consisted of the examination and selection of study areas and live trapping and tagging of marten. Fifty captures of twenty-one marten have been obtained, one male having been taken ten times over a considerable area.

A brief inspection of marten range in the Sun River Game Preserve provided information on habitat types but little information on abundance because of adverse weather conditions.

Job II-E: The Effect of Otter Food Habits on Fish and Fur Animal Populations.
Proceeding. Slightly more than ten percent of the approximately twenty-three hundred otter scats collected in the Thompson-Fisher-Wolf Creek and Gallatin River areas have been wholly or partially analyzed by Kenneth Greer. Remains of fishes, amphibians, aquatic insects, mammals and birds have appeared in the scats. Fishes predominate, and the data suggest that rough fishes are of greater importance than game species; but the small sample examined to date does not justify the formation of definite conclusions.

Job II-F: Distribution and Status of the Wolverine.
Completion report attached.

Submitted by:

Name Fletcher E. Newby

Title Junior Biologist

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

JOB PROGRESS REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-49-R-2 Work Plan No. II Job No. II-C

Title of Job: Survey of Beaver Distribution and Status in the Jefferson Basin.

OBJECTIVES: To formulate a management plan for the beaver of Montana based upon information provided by an intensive survey of a selected area.

TECHNIQUES USED: A copy was made of the Fisheries Division's stream and lake catalog of the Jefferson Basin (originally prepared by Clint Bishop and Charles Phenicie). Name, location and approximate length of all named streams in the Jefferson Basin were thus obtained. The present beaver harvest was ascertained from Deputy Game Warden records and from Fish and Game Department files in Helena, Montana. Beaver harvest locations were plotted on U.S.F.S. maps. A map measure (instrument) was used to obtain "miles of stream" information. Data were taken from the 1951-'52 fur season.

Field survey of important drainages was conducted. Interviews with Fish and Game Department employees, land owners and personnel of government agencies (U.S.F.S., U.S.S.C.S. and U.S.F.W.S.) supplied supplementary information.

FINDINGS: Habitat study and analysis is necessary to correctly estimate and evaluate the Jefferson Basin beaver population. Some indicative information is available. In addition to the 692 stream miles of legal permit, the U.S.F.S. lists 47 streams in Beaverhead National Forest with damage areas. Inspection of over twenty-two percent of the 909 named streams in the Jefferson Basin seems to substantiate local deputy game warden claims of "..no unoccupied beaver transplant sites".

The beavers of Montana are harvested almost exclusively by land owner permit. These permits are issued to alleviate beaver damage.

The data summarized in Table I shows permits were granted on 15 percent of the 4,512 stream miles in the Jefferson Basin.

The break-down into river drainages indicated the Jefferson River drainage had the greatest number of beavers taken per mile of legal stream (3.1). The highest percentage of legal stream miles, 19 percent, was found in the Big Hole.

An analysis of permit utilization by drainage is given in Table II.

TABLE I

STREAM MILES AND BEAVER TAKE PER MILE INDEX*

Drainage	Stream Miles			Harvest	
	Total	Legally Trapped Miles	% of Total	Number	No. Per Legal Mile
Jefferson	841	112	13	351	3.1
Big Hole	1,410	268	19	600	2.2
Beaverhead	2,261	312	13	586	1.9
Total Jefferson Basin	4,512	692	15	1,537	2.2

*A check on 200 streams indicated no significant variations between the Fisheries Division's method of obtaining "stream miles" and that of the writer's (map measure). These figures are subject to the accuracy of a $\frac{1}{4}$"/1 mile scale Forest Service map, and are thus only an estimate. Harvest per legal mile is an index figure only.

TABLE II

UTILIZATION OF AUTHORIZED HARVEST BY DRAINAGE

Drainage	Number Authorized	No. Taken	% of Authorized Harvest Taken
Jefferson	517	351	68
Big Hole	995	600	60
Beaverhead	901	586	65
Total Jefferson Basin	2,413	1,537	63

The percentage of permitted beaver actually taken ranged from sixty percent in the Big Hole River drainage to sixty-eight percent in the Jefferson. Of the total 2,413 authorized catch in the Jefferson Basin, 1,537 or sixty-three percent were trapped.

The efficiency of harvest by permit size is shown in Table III.

TABLE III

UTILIZATION OF AUTHORIZED HARVEST BY PERMIT SIZE CLASS
(148 PERMITS ANALYZED)

Size Class:	1 to 10	11 to 20	21 to 30	31 to 40	41 and Over
No. Permits	60	73	10	3	2
% of Total (148) Permits	40.5	49.3	6.8	2.3	1.5
No. Permits Not Used	16	13	0	0	0
% of Permits Not Used	27	18	0	0	0
No. Beaver Authorized	518	1,117	274	111	110
No. Beaver Harvested	286	713	184	84	91
% of Authorized Beaver Taken	55	63	67	76	83

One hundred and forty-eight permits were analyzed. Over forty percent of the permits were in the 1 to 10 beaver class. No beavers were trapped on twenty-seven percent of these; and only fifty-five percent of the authorized catch was taken. Forty-nine percent of the permits were in the 11 to 20 class. In this group, eighteen percent of the permits were not used and sixty-three percent of the authorized catch taken. The 21 to 30, 31 to 40 and 41 and over classes include 6.8 percent, 2.3 percent and 1.5 percent respectively of the permits analyzed. In these three groups, 100 percent of the permits were used and sixty-seven percent, seventy-six percent and eighty-three percent of the authorized catch was taken.

DISCUSSION: Apparently a high beaver population now exists in the Jefferson Basin. Our present system of management authorized trapping during the

1951-'52 fur season on fifteen percent of the stream miles in the region. Sixty-three percent of the authorized catch was taken. The progress of this study will not now permit an estimate of potential harvest. The data suggest we now take considerably less than the potential harvest of sustained yield management.

Large permits were more efficient than small permits. Only eleven percent of the permits were for twenty-one beavers or more. Those for twenty or less (89%) were trapped at an average of less than sixty-three percent utilization.

Evidently the present system of beaver management is inadequate. The data possibly suggest future management should authorize trapping on a greater percentage of total stream miles and "permits", individual allotments or trapping areas should be larger than the present system allows.

Present data of this study concerning water and soil conservation by beavers is not adequate for analysis. However, the literature is replete with studies verifying the value of this attribute. Grasse and Putnam (1950) consider water and soil conservation with other indirect services to be the primary objective of beaver management in Wyoming.

LITERATURE CITED: Grasse, J. E., and E. F. Putnam. 1950. Beaver Management and Ecology in Wyoming. Bull. 6, Wyoming Game and Fish Commission, Cheyenne, Wyoming.

Prepared by Joseph E. Townsend Approved by Fletcher E. Newby

Date January 1, 1953

JOB COMPLETION REPORT

INVESTIGATIONS PROJECTS

State of Montana

Project No. W-49-R-2 Work Plan No. II Job No. II-F

Title of Job: Distribution and Status of the Wolverine.

OBJECTIVES: To determine present-day occurrence of the wolverine in Montana.

PERSONNEL: Fletcher E. Newby, Junior Biologist
Dr. P. L. Wright, Montana State University

TECHNIQUES USED: Interviews of trappers, hunters, U. S. Forest Service, U. S. Park Service, and Montana Fish and Game Department personnel provided most of the accompanying records. In a few cases, correspondence obtained the desired information. All records which were not supported by specimens were carefully evaluated and it is believed that all are completely authentic.

FINDINGS: Figure 1 and Tables I and II summarize the findings. Twelve sight records and seventeen capture records were obtained, all but three west of the Continental Divide and concentrated in the tributary drainages of the Flathead River.

ANALYSIS AND RECOMMENDATIONS: The wolverine has long been considered a vanishing species in the United States and apparently has become extinct in some areas. The situation in Montana, however, appears to be somewhat different. While the accompanying observations and captures were made over a twenty-year period, almost half were made in the last three years. It is recognized that this apparent increase may be emphasized by a tendency for records of earlier observations and captures to escape notice; however, the evidence strongly suggests that the wolverine is increasing its numbers and repopulating its former range in Montana.

Lack of accurate earlier records makes evaluation of this apparent regrowth of population difficult. Interviews of trappers, woodsmen and fur buyers indicate that, earlier in the century, the wolverine was considered a very rare animal. Bailey (1918) quotes a local resident as believing the wolverine to be completely absent from Glacier National Park at that time. Records of wolverine in the Park area before its formation in 1910 were few. In 1933, tracks were seen for the first time in ten years and since that time tracks and observations of wolverine have been reported almost every year.

Regular reports of wolverine outside the Park began at a somewhat later date and the location and chronology of the records suggest that either Glacier National Park or nearby portions of Canada, or possibly both, served as a source of additional stock to augment the ranks of scattered individuals which survived intensive trapping elsewhere. Estimates of Fish and Game personnel ten years ago placed the number of wolverine in the Whitefish Range at four. The number of sight and capture records in that general area since

that time indicates an increasing population. The 1950 observation of four young wolverine on the upper Stillwater River attests to successful reproduction. First reports of tracks and observations in recent years from the Sun River area came about 1945 after a long period of apparent absence. These reports may be the result of dispersal from west of the Continental Divide. Large areas of semi-wilderness and wilderness habitat have doubtless aided in reducing the toll of economic conflict and trapping upon the supposedly wide-roaming wolverine. Restrictions of present-day trapping seasons have lessened the pressure from trappers although the wolverine is classed as a predator and completely unprotected. Many of the captures were obtained near civilization at the margins of wild areas. Thus, much of what would appear to be the best wolverine range is at present subject to little trapping pressure and may support a larger wolverine population than is suspected.

TABLE I. SIGHT RECORDS

No.	Date	Locality	Observer	Remarks
1	Mar. 1, 1944	White River Flats	Lloyd McDowell, M.F.G.D.* Horace Godfrey, U.S.F.S.**	
2	Mar. 1, 1945	Black Bear Landing Field	Lloyd McDowell, M.F.G.D. Horace Godfrey, U.S.F.S.	
3	Aug. 27, 1947	Red Shale Creek	Faye Couey, M.F.G.D.	2, seen by 15 people
4	1948 or 49	Red Meadow Creek	Ross Wilson, M.F.G.D. Lawrence Deist, M.F.G.D.	
5	Summer, 1948	Rock Creek	Paul Hazel, U.S.F.S.	
6	Oct., 1949	Rice Creek Ridge	Joseph Townsend, M.F.G.D.	
7	Aug. 1, 1950	Stillwater River	R. T. Cloninger, U.S.F.S. J. L. Aemesegger, U.S.F.S.	4, immature
8	Aug. 29, 1950	Williams Creek	J. L. Aemesegger, U.S.F.S.	
9	Sept. 13 or 14, 1950	Young's Creek	Wesley Woodgerd, M.F.G.D.	
10	Sept., 1951	Krinklehorn Lake	W. R. Ellis, U.S.F.S.	
11	June 21, 1952	Woodward Meadows	O. J. Nollar, M.F.G.D.	
12	Oct. 18, 1952	Pyramid Pass	William McCurdy, M.S.U.***	

In addition, a considerable number of sight and track records have been obtained in Glacier National Park in the last fifteen years.

*Montana Fish and Game Department.
**United States Forest Service.
***Montana State University.

TABLE II. CAPTURE RECORDS

No.	Date	Locality	Sex	Collector	Examined
1	1932	Marshall Creek	Unknown	Robert Anderson, Polson	Report only
2	Jan., 1933 or 1934	Forks of Sunday & Advent Creeks	Male	Tom White, Stryker	Report only
3	Winter, 1939	Pioneer Ridge	Female	Ray Miller, Kalispell	Report only
4	Dec., 1940	Red Meadow Lake	Female	Tom White, Stryker	Skull, MZ*
5	Winter, about 1940	Wolf Creek-Fortine Creek Divide	Two - unknown	Oscar Grey, Fortine	Report only
6	Winter, about 1941	Haskill Pass	Male	Hugh Galloway, Kila	Skin
7	Fall, 1945	Near Fish Lake	Male	Ray Miller, Kalispell	Whole mount, MZ
8	Fall, about 1946	White River	Female	H. C. Jorgenson, Polson	Skin
9	March, 1946	Teepee Creek	Male	Louis Haverlandt, Eureka	Skin
10	Winter, 1950	Grave Creek	Female	W. R. Ellis, Fortine	Skin, MZ
11	Fall, 1951	Albino Basin	Unknown	Big game hunter	Report only
12	Dec. 11 or 12, 1951	Teepee Ridge	Male	Glenn Clothier, Swan Lake	Report only
13	Feb. 15, 1952	Swamp Creek	Male	Will Fox Trout Creek	Skull, MZ
14	Feb. 26, 1952	Wolf Creek	Female	Carrol Estlick, Bigfork	Report only
15	March, 1952	Jim Creek	Male	John Hulett, Swan Lake	Whole mount
16	August, 1952	Cut Bank Creek	Male	Government trapper	Skin & skull, MZ
17	Summer, 1952	Lake Como	Unknown	Cause of death unknown	Leg & foot, MZ

*Specimens now in the Montana State University Museum of Zoology.

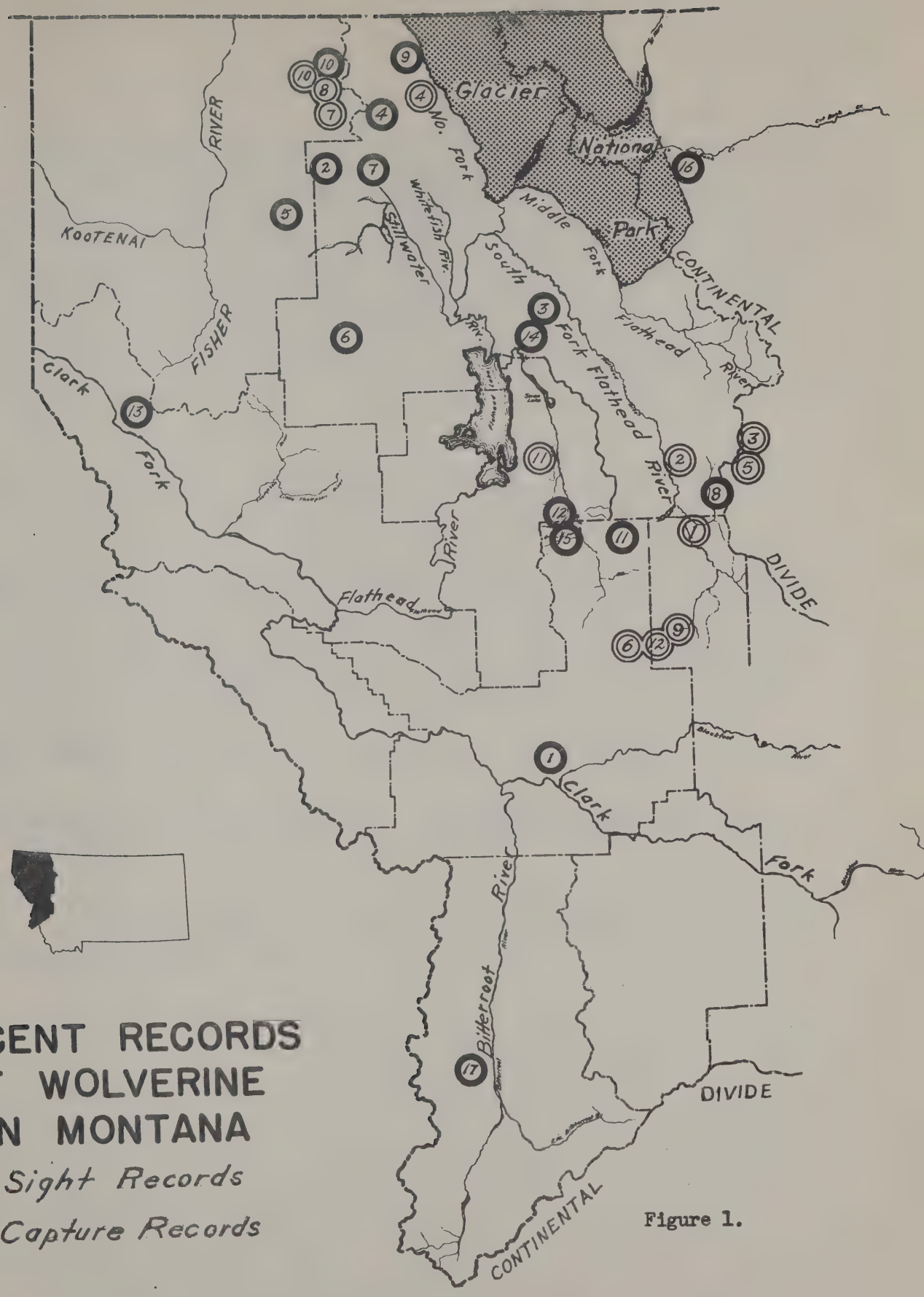

RECENT RECORDS
OF WOLVERINE
IN MONTANA
Sight Records
Capture Records
Glacier
National
Park
No. Fork
Middle Fork
South Fork Flathead River
Flathead River
CONTINENTAL DIVIDE
KOOTENAI RIVER
FISHER
Clark Fork
Whitefish Riv.
Stillwater
Flathead
Bitterroot River
Clark Fork
DIVIDE
CONTINENTAL

Figure 1.

It is reassuring to know that this interesting animal does not at present appear to be near extinction but rather repopulating its range. At present, no economic conflict exists and should individual cases arise, they would seem to be immediately accommodated by the present legal classification of the wolverine as a predator rather than a fur animal. Inasmuch as the wolverine is apparently increasing in the face of complete lack of protection, no change in legal status is recommended at present. Should this trend turn to one of decrease or should changing cultural practices reduce wolverine habitat drastically, it may be necessary to protect the wolverine as a number of other states have done. For this reason, it is recommended that information regarding the status of the wolverine be obtained whenever possible in order that the species may be retained as a member of the original fauna of our wilderness areas.

As a passing note of interest, most of the wolverine taken by trappers and hunters are prepared as rugs or whole mounts and regarded as trophies. A good pelt sold in the fur trade in 1952 brought twenty dollars.

SUMMARY: Twelve sight records and seventeen capture records of wolverine were obtained by interviews of trappers, hunters, U. S. Forest Service, U. S. Park Service and Montana Fish and Game Department personnel. All but three records were from west of the Continental Divide and were concentrated in the tributary drainages of the Flathead River. Analysis of these data indicates that the wolverine is not in immediate danger of extinction but rather is increasing its numbers and repopulating its range in Montana.

DATA AND REPORTS: The original data are with the project leader at Kalispell, Montana.

LITERATURE CITED: Bailey, Vernon. 1918. Wild Animals of Glacier National Park (The Mammals). Government Printing Office, Washington, D. C.

Prepared by Fletcher E. Newby Approved by Robert F. Cooney

Date January 1, 1953

STATE Montana
PROJECT NO. W-5-D-11
DATE January 15, 1953
VOL. III NO. 4

FINAL REPORT FOR

DEVELOPMENT PROJECTS

As Required by

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: General Wildlife Restocking

2. Leader: James McLucas, Fieldman

3. Report of Progress:

MOUNTAIN GOAT TRAPPING AND TRANSPLANTING

DATES: July 1, 1951 to June 30, 1952

PERSONNEL: James McLucas, Fieldman, Leader

AREA: South Fork of the Flathead

PURPOSE:

The trapping and transplanting of mountain goat with the purpose of establishing new groups in areas within the State suitable to this valuable big game animal.

This trapping and transplanting of mountain goats has been felt to be one of the most important phases of our big game restoration work. Originally goats were found on a limited range along the Continental Divide and on several mountain ranges to the west. Large mountainous areas lying east of the Continental Divide were completely devoid of this big game species. The transplanting work has of necessity been slow due to the extreme difficulties involved in capturing and moving mountain goats. The results, however, have been pleasing. Herds are now developing in several areas from rather small original introductions.

PROCEDURE:

During the fiscal year trapping operations were continued in the South Fork of the Flathead area. Several days were required in putting the

two traps near the mouth of the Little Salmon River in good repair. Actual trapping activities were carried out between the dates of July 1, 1951 and June 30, 1952.

In July 1951, four goats were captured in the Little Salmon River trap and taken by boat to Black Bear and flown to Helena. These were then moved by pickup to the Gates of the Mountains boat landing and transported several miles down the Missouri River, again by boat, to the release site near Meriwether Canyon. This release added to the goats already placed in this locality and is felt to complete the introduction for that region, with a total of 20 having been introduced. During the spring and summer of 1951 18 goats were placed in the Gates of the Mountains area, 4 of these during July (the 1952 fiscal year).

Four nannies were captured on June 28, 1952, and immediately transported by boat and airplane to the release site on the East Rosebud Canyon in Carbon County. Two young billies, one mature nanny and one female kid were captured and moved on June 29, 1952.

In accordance with techniques previously developed, one c.c. of sodium penta barbital per ten pounds of body weight was injected into each goat that was transplanted. It is interesting to note that no loss has been experienced in transporting goats since this technique has been developed. Its chief benefit appears to be the avoidance of shock which had previously accounted for the death of several animals. Two mature nannies were lost in the holding pen, however, during the trapping period. It has been found extremely difficult to hold goats for any period of time pending shipment.

Several interesting observations were made during the trapping period. Billies frequented the traps earlier in the spring than the nannies. This is believed caused by the restriction of travel of the nannies during the kidding period. Billies were seen in the vicinity of the trap between May 15 and June 15; nannies and kids arrived in the area shortly after mid-June and frequented the trap area throughout July.

Additional trapping was conducted during July 1952 which will be recorded in subsequent progress reports.

The release site on the East Rosebud River in the vicinity of East Rosebud Lake was first selected several years ago. The plant in this area is expected to reinforce several former plants made along the edge of the Beartooth Plateau area. This region, extending from Rock Creek south of Red Lodge to the Stillwater Canyon, presents idea habitat for mountain goats. The highest mountains in the State are found in this area. The extreme size of this particular region has made it necessary to make several introductions with the final objective of obtaining a desirable mountain goat establishment.

The following table includes detailed data regarding weights and measurements taken on animals handled during the trapping operation. Several were released due to transportation difficulties.

SOUTH FORK GOAT TRAPPING DATA - 1952
(Trap Located Above Little Salmon River)

Date of Capture	Tags Left	Tags Right	Sex	Age (Est.)	Weight	Total Length	Tail Length	Height of Shoulder
6-8-52	A481P	A482M	M	M	155	51 3/4	5 1/4	38
6-29-51 & 7-13-51	Lost	E1186	M	M	70	44 1/2	3 1/2	30 1/4
6-22-52	F1083M	F1080M	M	M	82	46	4	31
6-22-52	F1078M	F1081M	M	M	125	55	6	37
6-25-52	F1088		F	M	90	51 1/2	5	33
6-25-52 Recapture	E1107P	(Red Plastic)	F	M	80	48	4	31
6-25-52			M	K	10 1/2	25 1/2	2 1/2	16 3/4
6-27-52	F1082		F	M	95	51	5	33
6-27-52	F1086		F	M	125	55	4 1/2	36
6-27-52	F1078		F	M	92 1/2	47 1/2	4 1/2	30
6-28-52	F1087		F	M	90	50	4 1/4	33 1/2
7-1-52	Goat 322		M	Y	50	42	3 3/4	26
7-1-52	Goat 319		M	Y	60	44	4	30
7-1-52	Goat 325 & 321		F	M	95	52	5 1/4	33
7-1-52	Goat 316		F	K	14 3/4	26	3	16 1/2
7-3-52		F1085 F1095	F	M	60	44	4	28
7-3-52	F1084	F1093	M	M	110	52	5	38

O - Transplanted
R - Released
D - Died

Age - all ages estimated
M - Mature
Y - Yearling
K - Kid

(Continued)

Hind Foot	Ear Length	Horns				Denti-tion	Dispo-sition
		Length	B.C.	Spread	No. Rings		
14	4 3/4	8 3/4	5 1/4	5			R
12	4 1/4	7 1/2	4 3/4	4			R
12	4	8	4 3/4	None	2	1 pair P.I.	R
13 1/4	4 3/4	8 1/2	5 1/2	None	4	P.I.-3 Right and 4 Left	R
12 1/4	4 1/4	8	4	5 1/2	4	3 pair P.I.	D
11 3/4	4 1/2	7 1/2	4	3 3/4	4	2 pair P.I.	O
6 3/4	2 1/2	1/4				None	D
12 1/4	4 1/2	8	4	5 1/4	4	3 pair P.I.	R
12 3/4	4 1/2	9 1/8	4 1/4	5 3/4	4	4 pair P.I.	O
12	4 1/2	8 1/4	4	5 3/4	4	4 pair P.I.	O
12	4	8	4	5 3/4	7	P.I.-3 Right and 4 Left	O
10 1/4	3 1/2	3 3/4	3 1/4	3 1/2	1	4 pair M.I.	O
11 1/2	4	3 3/4	3 3/4	4	1	4 pair M.I.	O
12	4 1/2	8 1/2	4	6 1/4	4	4 pair P.I.	O
7 1/2	3					4 pair M.I.	O
11	4	5 1/2	3 1/4	4		1 pair P.I.	R
13	4 1/2	9	5 1/4	6 1/2		4 pair P.I.	R

P. I. Permanent Incisors
M. I. Milk Incisors

ANTELOPE

A Completion Report on antelope trapping and transplanting appeared in the January-March, 1952, Quarterly Report.

WHITE-TAILED DEER

Weather conditions were not favorable for trapping white-tailed deer during the fiscal year being reported. Observations regarding previous plants have indicated that very favorable establishment has been obtained in most cases.

A note of interest in this regard is the expected change of habitat which will soon come about following the flooding of the Missouri Valley by the Canyon Ferry Dam. This project was not foreseen at the time of the white-tail introduction between the head of the present Canyon Ferry Lake and Townsend. It is expected that the rather large number of white-tailed deer that have developed from our planting operations will move into surrounding areas. This expected dispersement will be followed carefully during subsequent investigations in the area.

MOOSE

A moose trapping and transplanting program was not inaugurated during the '52 fiscal year. Snow conditions in the Big Hole area where trapping had been proposed, were lighter than normal--resulting in a rather wide distribution of moose. It was therefore felt that trapping possibilities would be somewhat adverse.

No work was accomplished on this phase of the project.

GAME BIRDS

Experimental trapping and marking of sage grouse was carried out under a reseqrch project on a small scale north of Lewistown. It is expected that valuable information will be obtained regarding the distribution of this game bird species. It was felt that insufficient numbers were available to justify the carrying out of a transplant program at that time. An apparent upward trend in population has been indicated, however. It is hoped that these birds may be trapped for transplanting purposes during the '53 fiscal year.

There were no sufficiently heavy concentrations of ring-necked pheasants observed to justify the carrying out of the proposed trapping and transplanting program.

Submitted by:

Names James McLucas, Fieldman and Robert F. Cooney

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

STATE Montana
PROJECT NO. W-27-D-6
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

DEVELOPMENT PROJECTS

As Required By

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: Sun River Winter Elk Range Development

2. Personnel: Bruce Neal, Fieldman, Game Range Manager
Robert Neal, Fieldman, Assistant Game Range Manager
Dave Stonehouse, Fieldman

3. Report of Progress:

A. The one and one-quarter miles of fence around the Stecker exchange unit was completed during the previous reporting period. Incidental additional work consisting of putting in sufficient deadmen was carried out during early October. This is particularly important as strong winds are common on this portion of the range.

B. Drift Fence

Approximately twenty rods of drift fence was completed on the high pass between Hannon Gulch and Wagner Basin near the north end of the game range. It is expected that this fence will deflect the migration of elk directly onto the game range. Construction was difficult due to the lack of material in the area.

C. Willow Creek Station Repair

A new floor and concrete foundation was completed. A concrete floor was found to be the most desirable type. It consisted of four inches of concrete on approximately one foot of gravel base.

Submitted by:

Name Bruce Neal

Title Game Range Manager

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

STATE Montana
PROJECT NO. W-33-D-4
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

DEVELOPMENT PROJECTS

As Required by

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: Blackfoot-Clearwater Winter Big Game Range Development

2. Personnel: Stan Mongrain, Fieldman, Game Range Manager
Jack Ray, Fieldman

3. Report of Progress:

A. Truck Garage

Preliminary work was carried out in preparing the location of the quonset-type three-stall garage authorized under this project. It is expected that the actual construction work will be carried out during the spring months.

B. Fence Construction

There was no work on this phase of the project during the period.

C. Culverts

There was no work on culverts carried out.

D. Equipment

The purchase of the tractor has been postponed. A small tractor has been loaned from the Bird Farm Division to take care of necessary work until new equipment may be obtained.

Submitted by:

Name Stan Mongrain

Title Game Range Manager

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director
Wildlife Restoration Division

Date January 15, 1953

STATE Montana
PROJECT NO. W-26-M-5
DATE January 15, 1953
VOL. III NO. 4

FINAL REPORT FOR MAINTENANCE PROJECT

As Required by

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: Game Range Maintenance Through Salt Distribution

2. Personnel: Lloyd E. McDowell, Biologist
Dwight Stockstad, Student Assistant
Don Brown, Biologist
J. E. Gaab, Biologist
Deputy Game Wardens, Forest Service Personnel and pilots

3. Dates: This project was active during the period April 15, 1952 to October 14, 1952

Salt was obtained and placed at major distribution sites in late April. Distribution by air took place during the last two weeks in May. This completed all but two minor segments of this aerial work; 1000 pounds being placed in the Little Belt Mountains in late June (Don Brown); in early July Joe Gaab placed 1200 pounds of salt by air in the Absaroka wilderness region north of Yellowstone Park.

4. Purpose:

This project has been in effect during the past ten years. Its primary objective has been to lighten big game use on winter range as early as possible in the spring. In other words, both elk and deer have been found to respond quickly to the placement of salt on higher ranges, thus preventing the lingering on critical winter range areas into the early summer which was quite common prior to the development of an intensive salting program. In addition to this primary purpose of gaining desirable distribution, it is thought that salt supplies needed minerals in areas where deficiencies are known to occur. (This particular value is being substantiated by a detailed lick analysis now being completed under W-1-R-13 by Dwight Stockstad.)

5. Procedure:

A. Aerial Distribution

Block salt is delivered to the nearest town by truck or railroad and then stored at the airport pending distribution. A tri-motor Ford plane which is capable of carrying one and one-half tons of salt at a load has been used to distribute the salt in the more inaccessible areas. A smaller plane has been used when amounts to be dropped were of insufficient size to justify the large freighter-type aircraft.

In general aerial routes and areas salted were the same as those set up in detail in Rognrud's report, Wildlife Restoration Quarterly - July-September, 1950. Minor adjustments have been made, however, in order to more efficiently cover the salted areas. All of the salt shown in the following table was dropped by Ford tri-motor plane rented from the Johnson Flying Service in Missoula, Montana, at $90.00 per hour.

Date (1952)	Time Hrs.	Min.	Area	Cost	Total Pounds
May 21	1	25	Lower Blackfoot	$127.50	3,000
May 22	6	35	Sun River (4 trips)	592.50	12,000
May 23	2	20	South Fork of Flathead (Upper)	210.00	3,000
May 23	3	20	Plains-Thompson Falls	300.00	6,000
May 24	2	10	South Fork (White River & vicinity)	195.00	3,000
May 24	1	20	Seeley Lake area	120.00	3,000
May 24	1	30	Fish Creek (Deer Peak)	135.00	3,000
May 26	5	25	Bitterroot (4 trips)	487.50	12,000
May 27	7	25	Kalispell (5 trips)	667.50	15,000
May 28	3	15	Flint Range (2 trips)	292.50	6,000
May 28	1	45	Missoula-Blackfoot	157.50	9,000
June 3	3		Schafer-Big Prairie Holbrook-Black Bear	270.00	3,000
Totals	39 hours	30 minutes		$3555.00	78,000
Distributed in Little Belt Unit in proximity of Judith River Elk Range					1,000
Distributed in Absaroka wilderness area north of Yellowstone National Park					1,200
Total salt distributed by airplane					80,200

B. Ground Distribution

This type of distribution included all methods of salt placement other than aerial. The United States Forest Service cooperated with the Fish and Game Department in carrying out this phase of the project. Salt plans have been mutually worked out particularly in regard to problem big game ranges. Forest Service pack strings were made available when this

activity could be fitted in with the district program. Jeeps and pickups have been utilized by Restoration and law enforcement personnel. In a few cases salt has been actually back-packed into especially desirable locations.

On the Beaverhead Forest, salt placement was carried out in the Big Hole River and on the Upper Beaverhead River and Red Rock Creek drainage.

In the Bitterroot Forest all salting was done by air.

On the Cabinet Forest salting, in addition to the aerial placement, was carried out in the Thompson River drainage. This was primarily to supplement aerial distribution.

On the Custer Forest a ton and one-half was placed by pack string on the Beartooth Plateau area.

On the Deerlodge Forest, 2,800 pounds of salt was placed by pickup and pack string on the Wise River area and the Warm Spring Creek drainage west of Anaconda.

A majority of the salt for the Flathead Forest was placed on the big game ranges by air. However, 2,500 pounds was taken out by pack string in the North Fork of the Flathead drainage and in the Tally Lake area.

On the Gallatin Forest, all placement was by pack string and pickup except the 1,000 pounds mentioned above which was placed in the Absaroka wilderness area by plane.

The ground distribution consisted of 5,300 pounds of salt.

On the Helena Forest a ton of salt was distributed by pickup and pack string. This was distributed in the Big Belt Mountains in accordance with game distribution and needs.

All of the salt distribution on the Kootenai Forest was done from the ground with pack string and pickup . Eleven thousand five hundred pounds of salt was distributed on this Forest. The major objective in this region was to obtain a more desirable distribution of deer, both white-tailed and mule deer.

The majority of the salt distributed on the Lewis and Clark Forest was handled by airplane. In addition to the six ton placed in the Sur River range, an additional one thousand pounds was distributed by air on the Little Belts as described under aerial distribution.

Sixty-five hundred pounds of salt was taken out onto the big game ranges of the Little Belt unit by pack string and pickup. (The Castle Mountains were included in this work.)

On the Lolo Forest, a major portion of the salt was distributed by air in the Blackfoot-Clearwater, Flathead-Superior region.

All of the aforementioned salt distributed both by air and ground crews was the standard white block salt. In addition to this 6,000 pounds of mineral salt (phosphate) was placed on critical mountain sheep and mountain goat ranges. A ton of salt was distributed in the Rock Creek area; one and one-half tons in the Bitterroot Range (west side--goat and mountain sheep range), and half a ton in the Sun River Canyon mountain sheep range.

Summary:

Although it has not been possible to analyze in detail the results achieved by salt distribution on all of Montana's big game ranges, sample observations have indicated beneficial results. In the Sun River, numerous natural licks located on the winter elk range had previously held elk in that area well into the early summer. Much more desirable distribution has been achieved during the past ten years when adequate amounts of salt were placed on the higher ranges. Heavy use of natural licks has diminished. A similar lessening of natural lick use has been observed on the South Fork of the Flathead. Elk were drawn out of Glacier Park in substantial numbers by increasing salt placement along the outer edge, thus obtaining a desirable hunter harvest. The take by hunters has been more than doubled, apparently due to an increased salt placement north of Yellowstone Park in the Absaroka wilderness area.

It is hoped that a more complete analysis of this entire program will be possible in the near future.

Submitted by:

Name Robert F. Cooney, Director

Wildlife Restoration Division

STATE Montana
PROJECT NO. W-45-M-2
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

MAINTENANCE PROJECTS

As Required by

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title: Maintenance of Blackfoot-Clearwater Big Game Range

2. Personnel: Stan Mongrain, Fieldman, Game Range Manager
Jack Ray, Fieldman

3. Report of Progress:

A. Repair of Headgates and Ditches

Extensive repairs were made on the headgates and ditches during the month of October. Due to unusually dry conditions it was possible to work in the stream channel with a dozer. The main channel was thus cleaned of driftwood and old beaver cuttings to allow excess water in the spring to escape without backing up and washing out headgates and ditch banks.

Log footings were replaced in one headgate and the sides were resurfaced with 2 x 12 plank.

B. Bridges

Necessary incidental repair was carried out on several of the bridges on access roads within the area.

C. Roads

Access roads were maintained lightly during October. Snow removal work was carried out during late November and December. However, this activity was not heavy due to extremely mild weather conditions.

D. Fences

Incidental repair was carried out where necessary on boundary fences to prevent livestock trespass. Large numbers of pack and saddle stock are turned out on adjoining lands soon after the hunting season, causing somewhat of a trespass problem.

E. Weed Control

Early fall examinations indicate that a particularly effective control program had been carried out on the leafy spurge areas. Goatweed areas will need a vigorous follow-up program next spring.

F. Game Baiting

Due to the general lack of snow during the period it was felt that bait lines previously established would be unnecessary until heavier concentrations of elk and deer developed in areas adjacent to the game range.

Careful patrol, both within and adjacent to the game range, was carried out. Elk found in this area were drifted onto the range. By the close of the report period, however, the majority of the big game were still on the upper limits of the winter range.

G. Miscellaneous

A supply of firewood was obtained for the Blackfoot-Clearwater headquarters. This was cut, split and stored in a shed near the buildings.

Incidental supervision was given to the additional construction of feeding pens on the Blackfoot-Clearwater Game Range in conjunction with the elk nutritional studies which will again be conducted under the W-47-R Game Range Predevopment Program.

The portable elk trap constructed a year ago was set up on the game range with the objective of continuing the tagging program initiated at that time. During the period 29 elk were trapped and tagged. It was interesting to note that 11 of this number bore last year's tags.

The removal of trespass livestock was particularly important this fall as mild weather allowed stock to remain on the open range until late October. This accounted for an unusually heavy drift onto the game range.

Submitted by:

Name Stan Mongrain

Title Game Range Manager

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

STATE Montana
PROJECT NO. W-46-M
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

MAINTENANCE PROJECTS

As Required By

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: State-wide Maintenance

2. Personnel: Jack Owens, Senior Fieldman
George Sturtz, Fieldman
Lloyd Bray, Fieldman

3. Report of Progress:

PURPOSE:

To repair fences around wildlife areas and to get a count on waterfowl using these areas.

The following are general conditions of areas, the work done on each, and the waterfowl seen in each area:

FINDINGS:

Ackley Lake Judith Basin County

Fence was in good shape. Repaired a few broken wires and added posts to reach the water. Water was very low. Cover in wildlife area was good.

Waterfowl: Approximately 200 ducks, mostly scaup
1 pair mallards

Warhorse Lake Petroleum County

Fence around wildlife area was in good condition. Cover good. Water low. No work was done on this fence.

Waterfowl: 175-200 ducks, unidentified

Valentine Reservoir Fergus County

Fence was in very poor shape. It was repaired good enough to keep stock out temporarily. This fence will need approximately two hundred new posts. Water was about normal. Cover good.

Waterfowl: 175-200 ducks, unidentified

Yellow Water Reservoir Petroleum County

Fence was in good shape. Repaired several broken wires and replaced broken posts. Water was low. Additional fence was put in where it entered water. Two large rock anchors were built on the ends of the fence. These were made by setting six or seven wooden posts in a circle, wiring them together and filling them with rocks.

Waterfowl: 24 Canada geese
1 pair gadwalls
1 coot
1 blue-winged teal
30 unidentified

Woods Reservoir Musselshell County

Fence was in good condition. One post was put in. Water was a little low. Cover in wildlife area was good.

Waterfowl: 1 female gadwall with 9 young
1 female blue-winged teal

Alt Reservoir Musselshell County

Fence was in good shape. Reset one corner post and fixed broken wires where fence crossed creek. Water was low. Cover was good inside area. Two posts were replaced.

Waterfowl: 1 female pintail with 8 young

Goodwin Reservoir Musselshell County

Fence was in very poor shape. This reservoir was completely dry. All cover had been damaged by livestock. This area has been abandoned.

Melstone Reservoir Musselshell County

Fence was in fair shape. Eighteen new posts were put in. A little repair work was done on the ends, where fence enters water. Water was about normal and cover was good.

Waterfowl: 17 redheads
1 female blue-winged teal with 6 young
1 female mallard with 7 young
2 grebes

Grant Reservoir Prairie County

Fence was in very poor condition. Cattle had eaten up and ruined all cover. Water was low. This area has been abandoned.

Waterfowl: 1 pair ruddys
2 shovellers
1 grebe

Clark Reservoir Prairie County

This fence had been cut by fishermen and ranchers and was in poor condition. Water was a little low and cover was in fair shape. This area has also been abandoned.

Waterfowl: 13 pair shovellers
6 pair blue-winged teal
1 grebe
20-25 unidentified ducks

Kubash Reservoir Dawson County

Fence was washed out due to high water. One rock anchor was built where it crossed the creek. Twelve steel posts were used. Water was high and cover very good.

Waterfowl: 1 female mallard with 8 young
2 female mallards

Johnson Reservoir Dawson County

Fence was repaired in three places where it was washed out. Twenty steel posts were used in fence. Water was high and cover was in good condition.

Waterfowl: 4 male redheads
2 female redheads
4 grebes
1 female pintail with 6 young
1 female blue-winged teal with 7 young
1 pair mallards
2 male blue-winged teal

VR-9 Valley County

Fence was in good shape. Six steel posts were used. Water was high and cover good.

Waterfowl: 1 pair blue-winged teal
1 pair mallards
1 male mallard
1 western grebe

VR-82 Valley County

This fence was down in two places. This was repaired--14 posts used. A small gate was built for fishermen to keep them from climbing over the fence. Several trees had been cut down. Water was high and cover good.

Waterfowl: 2 pair mallards
1 male shoveller
1 female blue-winged teal with 5 young
1 female blue-winged teal with 3 young
1 pair blue-winged teal with 5 young
2 pair gadwall
1 male pintail
1 male blue-winged teal
1 pair blue-winged teal with 7 young
1 male mallard
2 western grebes

PR-95 Phillips County

Fence was in fair shape. Nineteen new posts were installed. Water was a little high and cover was good.

Waterfowl: 60 unidentified ducks
1 female mallard with 7 young
1 female pintail with 8 young
1 female pintail with 4 young

PR-161 Phillips County

Fence was in good shape. The south end of wildlife area was abandoned. A new fence was built across the southern boundary of the wildlife area. All the old wire was rolled up and piled inside the wildlife area. Fifty-eight new posts were put in. Water was high and cover was very good.

Waterfowl: 100-125 Canada geese
100-200 unidentified ducks

PR-88 Phillips County

This fence was in very poor condition. This area also had cattle inside of it. Several trees were dying. PR-88 has been abandoned.

Waterfowl: 1 pair pintail
6 male pintail
1 female pintail with 4 young
1 male shoveller
2 pair blue-winged teal
1 male blue-winged teal
1 coot
10 pair scaup
6 pair mallards
20-25 unidentified ducks

BR-38 Blaine County

Fence was in good shape. Five new posts were put in. Water was high and cover was good.

Waterfowl: 3 pair mallards
1 pair blue-winged teal with 8 young
1 male blue-winged teal
1 grebe with 2 young

BR-52 Blaine County

Fence was repaired where it entered the water. Thirteen posts were put in. Water was high and cover very good.

Waterfowl: 1 female blue-winged teal with 7 young
7 male blue-winged teal
1 male mallard
1 male green-winged teal

A bobcat was seen inside the wildlife area.

BR-43 Blaine County

Fence was in good shape. Thirteen new posts were put in. Water was too high to do any work on the ends. Cover was good.

Waterfowl: 2 female mallards with 5 young each
1 male blue-winged teal
1 female mallard

BR-12 Blaine County

This fence was washed out across lower end of reservoir. A large rock anchor was built on both sides of the main channel and the fence was built to the anchors from the shore. Water was about normal and cover was good. Fifty-one steel posts were used.

Waterfowl: 7 pair blue-winged teal
2 blue-winged teal - male
1 pair mallards
6 Canada geese with 14 young
12 male scaup
1 pair scaup
1 pair baldpate
2 pair gadwall
2 male canvasbacks
2 male shovellers
6 coots
35-50 unidentified

BR-47 Blaine County

Fence was in good shape. Ten steel posts were used. Water was high and cover was good.

Waterfowl: 1 pair ruddy with 6 young
1 female pintail with 10 young
2 female mallards
6 pair redheads
1 male ruddy
1 coot with 3 young
1 pair pintails
3 coots
3 grebes

BR-45 Blaine County

Fence in good shape. Twenty-five steel posts were used. Water was high and cover good.

Waterfowl: 1 pintail female with 10 young
1 pintail female with 12 young
1 grebe with 1 young
2 female blue winged teal with 8 young each
1 female mallard with 11 young
1 female pintail with 7 young
1 pair gadwall with 12 young
1 blue-winged teal female with 5 young
1 pair pintail with 8 young
1 female blue-winged teal with 10 young
1 coot
3 pair scaup
1 male scaup
1 pair gadwall

BR-8 Blaine County

Fence was in fair shape. It was washed out across the lower end, and a rock anchor was built out in the middle. Fence was connected to it from both sides of lake. Sixty-three posts were used.

Waterfowl: 150-200 unidentified ducks

Submitted by:

Name George Sturtz

Title Fieldman

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director
Wildlife Restoration Division

Date January 15, 1953

SUPPLEMENTARY REPORT

MAINTENANCE PROJECTS

State of Montana

Project No. W-46-M

Title of Job: Billy Creek Mountain Sheep Pasture

DATE: September 8, 1952 to October 11, 1952

PERSONNEL: George Sturtz, Fieldman
Lloyd Bray, Fieldman
Donald Ritter, Laborer

INTRODUCTION:

In 1947 an 8½ foot woven wire fence was constructed at Billy Creek in the Missouri Breaks (Garfield County). Sixteen mountain sheep were transplanted within this area to re-establish a sheep herd in the badlands where the now extinct Audubon sheep once ranged. This year it was concluded that these sheep were well enough established to be released.

PROCEDURE:

This fence had one section of 36-inch wire around the bottom and two sections of 32-inch wire around the middle and top. These were connected with hog rings. All hog rings were taken off and each roll was rolled up separately. All wire, except that which was in the bottom of the two main coulees, was piled up. All steel posts that could be pulled were also saved. This material was all taken to Lewistown and piled at the Fish and Game office there. A fence was then built around it. This material will be used in the future in the construction of a similar fence north of Lewistown.

Upon arrival at the pasture, 28 mountain sheep were counted (21 ewes and lambs and 7 rams). The rams remained inside the pasture area all the time the fence was being taken down. The ewes and lambs, however, were only seen occasionally, and were always in small bunches.

Submitted by George Sturtz Approved by Robert F. Cooney

Date January 15, 1953

STATE Montana
PROJECT NO. W-47-M-2
DATE January 15, 1953
VOL. III NO. 4

QUARTERLY PROGRESS REPORT FOR

MAINTENANCE PROJECTS

As Required By

FEDERAL AID IN WILDLIFE RESTORATION ACT

1. Title of Project: Maintenance of Sun River Winter Elk Range

2. Personnel: Bruce Neal, Fieldman, Game Range Manager
Robert Neal, Fieldman, Assistant Game Range Manager
Dave Stonehouse, Fieldman

3. Report of Progress:

A. Ditches

Several important ditches were cleaned and repaired during the previous period.

B. Roads

A moderate amount of maintenance was necessary on the newly reconstructed section of access road. It is expected that this road which has been raised and gravelled will greatly improve the accessibility of the headquarters station during the winter months.

C. Fences

Moderate repair of boundary fence was necessary due to extremely high winds prevailing during the fall months.

D. Firebreaks

The firebreaks were carefully maintained during the fall. A high fire hazard continued during the extended drought period which lasted into late November. Six miles of firebreak was maintained.

E. General Supervision

Fire patrol continued to be an important activity throughout October and early November. Extremely dry conditions prevailed during this period.

A small amount of time was taken up in the removal of trespass livestock. The manipulation of elk became an important portion of the program soon after the close of the hunting season November 15. Several minor storms in late November caused a drift of elk onto the foothill ranges. The majority moved directly onto the game range. However, considerable activity was necessary in moving some of the more remote groups onto the range. Due very probably to milder than average conditions, fewer elk had moved onto the range by the end of the reporting period than had been observed during the past several years. It is probable that between six and seven hundred elk were on the range as of December 31st.

Submitted by:

Name Bruce Neal

Title Unit Manager

Approved by:

Montana State Department of Fish and Game

By Robert F. Cooney, Director

Wildlife Restoration Division

Date January 15, 1953

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